

Syllabus.

STATE OF WYOMING *v.* STATE OF COLORADO
ET AL.

IN EQUITY.

No. 3, Original. Argued December 6, 7, 8, 1916; restored to docket for reargument March 6, 1917; reargued January 9, 10, 11, 1918; restored to docket for reargument June 6, 1921; reargued January 9, 10, 1922.—Decided June 5, 1922.

1. The waters of an innavigable stream rising in one State and flowing into a State adjoining may not be disposed of by the upper State as she may choose, regardless of the harm that may ensue to the lower State and her citizens. P. 466.
 2. The relative rights of two adjoining States to the use of an innavigable interstate stream, must be determined in accordance with right and equity and in harmony with the constitutional principle of state equality. Pp. 465, 470.
 3. This does not imply an equal division of the water between the two States. P. 465. *Kansas v. Colorado*, 206 U. S. 46.
 4. The doctrine of appropriation, by which priority of appropriation gives superiority of right, affords the only equitable basis for determining this controversy, in which Wyoming seeks to prevent diversion of water from the headwaters of the Laramie River in Colorado for use in irrigating Colorado lands, to the detriment of prior irrigation appropriations made from the same stream in Wyoming. P. 467.
- So *held*, in view of the early adoption and continual practice of the doctrine in both jurisdictions alike, sanctioned by the United States as owner of the public lands, its perpetuation in the constitutions of both States at the times of their creation as a doctrine already existing and essential to their natural conditions, its relation to the settlement and irrigational and agricultural enterprises in both, and the recognition in both of the right to appropriate water from interstate streams.
5. In applying the doctrine of appropriation in this case, private appropriations should be recognized in the order of their priority, as they would be if the stream lay wholly in either State. Pp. 468, 470.

6. Such recognition of private rights *held* not inappropriate in a suit between the two States, in view of the relation of the appropriations to taxable values, and to the welfare, prosperity and happiness of people in each State. P. 468.
7. In as much as the doctrine of appropriation, as it exists within these two States, was adopted, and practised from the beginning, with the sanction of the United States as owner of the public lands, and in as much as the United States does not now seek to impose any policy of its own choosing on either State, the question whether, in virtue of such ownership, it might do so, is not here considered. P. 465.
8. The fact that the proposed diversion is to another watershed from which Wyoming can receive no benefit is not in itself a valid objection, since like diversions are made and recognized as lawful in both States. P. 466.
9. The doctrine of appropriation lays upon each State a duty to exercise her right reasonably and in a manner calculated to conserve the common supply. P. 484.
10. The evidence establishes:
 - (a) The average yearly flow of the Laramie River, in Wyoming, is not a proper measure of the supply practically available there from year to year. P. 471.
 - (b) Computation should be based on the unalterable need for a supply that is fairly constant and dependable, or susceptible of being made so by storage and conservation within practicable limits; substantial stability of supply being essential to successful reclamation and irrigation. P. 480.
 - (c) The reasonable measure of the supply available in Wyoming for practical use is not the lowest natural yearly flow, but something considerably greater, obtainable by storage. P. 484.
 - (d) So measured, the entire supply, from the Laramie and from certain tributaries in Wyoming, available for Wyoming appropriations here involved and for the proposed Colorado appropriation, is 288,000 acre-feet per annum. P. 488.
 - (e) The Wyoming appropriations senior to the proposed Colorado appropriation require 272,500 acre-feet, and the overplus available for that appropriation is therefore restricted to 15,500 acre-feet, per annum. P. 496.
11. Permits, issued by the State Engineer of Wyoming, to appropriate water in specified quantity from the stream, are mere licenses, and not adjudications that a surplus subject to appropriation exists. P. 488.

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12. The proposed Colorado appropriation is to be dated from the time when the project became a fixed plan with a definite purpose, and when work upon it was begun; not related back to an earlier date, when the project was inceptive and uncertain; and, by the same rule, several of the Wyoming appropriations are treated as relating to dates later than those claimed for them. Pp. 490-495.

THIS was an original suit, brought in this court by the State of Wyoming against the State of Colorado and two Colorado corporations, for the purpose of preventing a diversion of part of the water of the Laramie River, a stream flowing from Colorado into Wyoming. The facts are fully stated in the opinion, *post*, 455. The bill was filed on May 29, 1911. A motion to dismiss, equivalent to a demurrer, was argued and, on October 21, 1912, was overruled without prejudice. The case was argued, and twice reargued, on final hearing, the United States participating in the last two arguments, by leave of the court.

In the following summaries of the arguments made upon the last occasion, discussion of the facts is for the most part omitted.

Mr. N. E. Corthell and *Mr. John W. Lacey*, with whom *Mr. Douglas A. Preston*, Attorney General of the State of Wyoming, *Mr. John D. Clark* and *Mr. Herbert V. Lacey* were on the briefs, for complainant.

In Colorado and Wyoming, and in every other State where irrigation is practiced, it is held to be the only equitable rule that the rights of a prior appropriator shall be considered exclusive, and that he shall at all times take from the stream such amount of water as he needs up to the full amount of his appropriation, without any requirement that he divide with other appropriators in times of scarcity. He is not obliged to build reservoirs, nor store the water, but may take it from the stream as it was running when he first appropriated; he is not required to

make any expenditures whatever, in order that others may have water. Indeed, to require that he shall incur the expense necessary in storing water would often be to destroy his priority, since the expense would be more than the value of his prior right. 1 *Wiel*, Water Rights, 3d ed., § 279; 2 *Kinney*, Irrigation, 2d ed., § 801, p. 1398; *Conant v. Deep Creek Co.*, 23 Utah, 627; *Hill v. Smith*, 27 Cal. 476, 482; *Smith v. Denniff*, 24 Mont. 20; *Phoenix Water Co. v. Fletcher*, 23 Cal. 482; *Wyatt v. Larimer & Weld Co.*, 18 Colo. 298; *Comstock v. Ramsey*, 55 Colo. 244; *Barnes v. Sabron*, 10 Nev. 217; *Willey v. Decker*, 11 Wyo. 496; Rev. Stats. § 2339; *United States v. Rio Grande Co.*, 174 U. S. 704.

The rights of the prior appropriator are especially active in time of water deficiency. *Avery v. Johnson*, 59 Wash. 332; *Huning v. Porter*, 6 Ariz. 171; 1 *Wiel*, Water Rights, § 301.

In accordance with these principles, Wyoming, during the irrigation season of each year, is entitled to the flow of the stream as it may at the time naturally flow, up to the amount necessary to supply the Wyoming appropriations that are prior in time to the inception of the Colorado attempt at diversion. All of the evidence, without contradiction, shows that, in practically every year during the irrigation season, the entire stream flow is not only taken by the Wyoming prior appropriators but is necessary for the purposes of irrigating their lands; and in many of the years—dry years as they are called,—the water in the stream is insufficient for the concededly prior Wyoming appropriations. If the water were being diverted by Colorado into reservoirs within the watershed, then the objection to such diversion would be less serious. If it were diverted within the watershed, it would not be difficult, under the Wyoming system, or indeed under any system, to require the owners of the reservoir in the watershed into which the water is diverted to turn it back into

the stream for the use of the prior appropriators. But in the case at bar, Colorado's diversion will take the water to a place where it will be impossible to return it to the stream, and therefore in every year when the water in the stream may turn out to be less than the amount of the prior Wyoming appropriations plus the Colorado diversion, irreparable wrong will be done to the Wyoming appropriators, and in most of the years the wrong will go to the extent of entirely depriving many of the Wyoming appropriators of water. But in not more than one year in seven could any substantial fraction of seventy thousand acre-feet of water be taken during the irrigating season without depriving the Wyoming prior appropriators of necessary water.

We submit, therefore, that, if the state line between Colorado and Wyoming leaves the rights of appropriators as if all were in the same State, it is clear that the Wyoming appropriators have the right to the water during practically every year; that the years when they will not need it all cannot be ascertained in advance, and that the diversion as intended by Colorado, because of its character and the place to which it will take the water, will in most years cause such injury and damage as entitle the Wyoming appropriators to injunctive relief.

The question of the effect of state lines upon the rights of appropriators in different States has been before the courts of the arid region in a number of cases. The universal holding is, that priority of appropriation gives priority of right on interstate streams, the same as on streams wholly within one State. *Hoge v. Eaton*, 135 Fed. 411, 414 (reversed on another point, 141 Fed. 64); *Taylor v. Hulett*, 15 Idaho, 265; *Conant v. Deep Creek Co.*, 23 Utah, 627; *Willey v. Decker*, 11 Wyo. 496, 533; *Farm Investment Co. v. Carpenter*, 9 Wyo. 110; *Howell v. Johnson*, 89 Fed. 556; *Anderson v. Bassman*, 140 Fed. 14; *Morris v. Bean*, 123 Fed. 618; 146 Fed. 423; 159 Fed. 651,

655; *Miller v. Rickey*, 127 Fed. 573; 152 Fed. 11, 17; s. c. 218 U. S. 258; *Bean v. Morris*, 221 U. S. 485; 3 Kinney, Irrigation, § 1225.

Both Colorado and Wyoming are at the crest of the continent. They have both adopted to its broadest extent the doctrine of prior appropriation. And, whether it can stand alongside the doctrine of riparian rights in the same jurisdiction, (as it actually does in a majority of the irrigation States), or is so antagonistic as to exclude the latter, we believe that, for the purposes of the decision of this case, the doctrine of prior appropriation must furnish the rule. The people of both States, by their constitutions, have declared that doctrine to be the just and reasonable doctrine throughout the area involved in this litigation, and, by their legislatures, have reiterated the same doctrine, and provided numerous rules and regulations for carrying it out in both States. The courts in both States have given their adherence, even to the extent of saying that the rule was in force in each State long prior to any constitutions or statutes on the subject. Therefore, so far as the parties here are concerned, that rule and doctrine must be held reasonable and just, and neither State could complain of its use in settling the controversy here.

The facts in the case at bar would permit, and even justify, a decision of this cause on the general principles of prior appropriation, without deciding anything as to the rights of different States whose differing climates have caused the adoption of rules and principles differing in the one State from those in the other.

We realize that the doctrine of prior appropriation is not recognized in all the States, and that, if general principles are to be here decided, such as shall apply to all interstate streams, and boundaries shall be here fixed to the rights of differing States in interstate streams applicable to all circumstances, in reaching such universal prin-

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ciples and conclusions there are many and serious problems entirely outside of mere appropriation problems.

Waters falling in Colorado flow out of that State, some to the Gulf of California, and some to the Gulf of Mexico; and it would be entirely possible within that State to construct diverting systems which would turn waters, naturally tributary to the flow into the Gulf of Mexico, into the streams emptying into the Gulf of California. The States through which the waters would run, in case of such diversion, would be different from those through which they would run naturally. The same situation exists in Wyoming, even to a greater degree. It would be entirely possible in Wyoming to construct diversion works such as would turn large bodies of the water from one great river system into another. Each State receiving water from Wyoming has great need for the water. In the case of at least two of the systems, the water from Wyoming flows into and through States which refuse to recognize rights by prior appropriation as superior to riparian rights. In some cases the needed flow from Wyoming is into States which fully recognize the doctrine of prior appropriation. We recognize that Wyoming, if allowed to divert the waters from one stream and one system to another, could inflict vast injury upon sister States. It may not be amiss, therefore, for this court to consider in the decision of this case, the general question of the effect of its decision on the problems which would naturally grow out of the attempt upon the part of Wyoming or Colorado to use within their own boundaries methods of diverting water such as will become injurious to sister States.

The streams rising in Colorado and Wyoming but illustrate the very general character of the questions involved, if rules are sought applicable universally to rights on interstate streams. The stream in the case at bar rises in Colorado, and flows into and through Wyoming, and thence into Nebraska, and on down into other States where

the riparian-rights doctrine pure and simple is adopted. The rights of Wyoming might easily be ground between the upper and nether millstone, if Colorado should be permitted to take a large share of the water on some general principle of prior appropriation, while at the same time Nebraska and lower States could require Wyoming to permit the waters to flow on down into the lower States, practically undiminished in quantity.

The situation for Wyoming will be still worse—far worse—if Colorado shall be permitted to ignore the Wyoming rights acquired by prior appropriation, and, also at the same time all riparian rights, by taking waters for use not only within the watershed, but also without, while leaving Nebraska and lower States the power to compel Wyoming to yield to Nebraska riparian rights.

[Counsel then referred to decisions of the court in *Georgia v. Tennessee Copper Co.*, 206 U. S. 230; *Kansas v. Colorado*, 206 U. S. 46; *Rickey Land Co. v. Miller & Lux*, 218 U. S. 258; *Bean v. Morris*, 221 U. S. 485; also to 3 Kinney, Irrigation, §§ 1225, 1227, 1230; to the opinion of Attorney General Harmon, 21 Ops. Atty. Gen. 274, and a letter of Mr. Evarts, 1 Moore, Int. Law Dig., 653, concerning the rights of this country and of Mexico to the waters of the Rio Grande, and to the case of *United States v. Rio Grande Co.*, 174 U. S. 690, and the Treaty with Mexico of May 21, 1906, 34 Stat. 2953.]

It is apparent that nothing in any of these quotations or discussions draws in any clear way the lines bounding the rights of a State, as distinguished from those of its citizens, in the waters of an interstate stream. Nor is there anything in any clear way marking out the principles upon which equitable division of waters shall be made in such streams. These matters are left to be determined by rules that may be worked out, or by analogies from rules governing such matters where the adjoining proprietors, instead of being States, are individuals. Some of the

suggestions of this court seem to hint that such rules "may be more or less analogous to common-law rights between upper and lower proprietors." (218 U. S. 258.)

A just criticism has often been made on precedents established in interstate relations, to the effect that many such precedents are almost solely the result of *vis major*. It is to be hoped that the tendencies in dealings between States are in the direction of principles of right and justice; in other words, equitable principles. When such principles are sought and applied in international relations, they are found to approximate more and more closely the equitable principles governing relations between individuals.

The parties to this controversy are not permitted to make war upon, nor even to make treaties with, one another. Their controversy is, therefore, brought to this court to be here determined. If the case is to be ruled by principles of law already discovered, so far as we can see they are ruled by principles governing between private persons. The precedents as to international rights on international streams are scarcely sufficient upon which to base any rule, and, such as they are, they are contradictory; even this Government contending, now that riparian rights govern when diversions of water were made within the boundaries of a foreign government, and again contending that the foreign government has no right to complain when diversions were made within the boundaries of this country, and still later, while in words protesting that it was not doing so, in deeds recognizing the rights of those injured by diversions within our territories.

The Roman law, as appears from the Pandects of Justinian, adopted the principles of riparian rights, and apparently allowed something in the way of irrigation and of equitable division of waters for that purpose. The same is true of the Code Napoleon, Art. 644, and of the

Mexican law at the time of the acquisition of our Mexican territory, including Colorado and large parts of Wyoming. 1 Wiel, *Water Rights*, pp. 68, 685, 1026. But in all these jurisdictions, while water was to an extent used for irrigation, riparian rights were held superior to rights for irrigation.

It is needless to cite authority to show that in Great Britain, and in most of the States of the Union, while there has been some limited right to use water for irrigation, still the rights of the riparian proprietor are superior. In all the jurisdictions above mentioned, the riparian proprietor had the right to insist that the use of water should not unreasonably reduce the flow of the stream, should be confined within the watershed, and the surplus be returned to the stream.

There are eighteen of our own States and Territories which may be denominated generally the irrigation States, inasmuch as in each there is more or less of arid land requiring irrigation, and the laws recognize, more or less, irrigation rights. In ten of these, while the use of waters of streams for irrigation is permitted, the riparian proprietor is recognized as having the superior right, and the waters are not permitted to be diverted by the irrigators beyond the watershed; but the surplus must be returned to the original stream. 1 Wiel, *Water Rights*, p. 849; 1 Kinney, *Irrigation*, p. 782; 2 Farnham, *Waters*, p. 1572; 3 *id.*, p. 1903; *Wiggins v. Water Co.*, 113 Cal. 182; *Bathgate v. Irvine*, 125 Cal. 135; *Southern California Co. v. Wilshire*, 144 Cal. 68; *Anaheim Water Co. v. Fuller*, 150 Cal. 327; *Clark v. Allaman*, 71 Kans. 206; *Watkins Land Co. v. Clements*, 98 Tex. Civ. App. 578; *Matagorda Co. v. Markham Co.*, 154 S. W. 1176.

In the other seven irrigating States, viz., Arizona, Colorado, Idaho, New Mexico, Nevada, Utah, and Wyoming, fuller rights of appropriation are recognized, and apparently the right is recognized to take water outside the

watershed, even over the objections of those within it. But in none of these States is any diversion from the watershed permitted on any principle of equitable division, even remotely expressed or implied. On the contrary, each of these States insists upon the doctrine that the rights of a prior appropriator are exclusive, even to the full extent of his prior appropriation. No division of the waters which would take anything from the prior appropriator to his injury is recognized as in any sense equitable.

This court, in *Kansas v. Colorado*, reached a conclusion that, on the facts in that case, equitable division of the waters was a reasonable principle, as between adjoining States on an interstate stream. As we understand that case, this principle of equitable division was not evolved as a new principle, but was a mere application of the doctrine of equitable division as between private riparian owners. No rules for equitable division were there laid down, nor were any such rules even discussed, excepting by a reference to rules of division between riparian owners.

The equitable division was all within the watershed. No question arose there of permitting such division as would carry waters without the watershed. One would search in vain for any doctrine of equitable division of waters which would permit one proprietor to carry the waters without the watershed, with no obligation to return them to the stream, in any State or country administering the rule of riparian rights. In the seven States, possibly the most arid, as we have seen, no doctrine of equitable division of the waters is allowed.

It is interesting, moreover, to note that there are at least tendencies in some of these States, constituting the seven last above mentioned, to recognize rights of owners along the stream and to restrict the diversion beyond the watershed. Nevada Laws, 1907, c. 18, § 4, p. 31; New Mexico

Laws, 1907, c. 49, § 72, p. 95; *Hutchison v. Watson Ditch Co.*, 16 Idaho, 484; *Anderson v. Bassman*, 140 Fed. 14.

This court has in many cases considered the rights of States as against one another. *Missouri v. Illinois*, 180 U. S. 208; *Georgia v. Tennessee Copper Co.*, 206 U. S. 230; *Kansas v. Colorado*, 185 U. S. 125; 206 U. S. 46, and cases cited by these. It is clearly established by this court that a State does not have a right to do acts within her own borders which shall affirmatively cause injury in another State. The question of the sovereign right of Colorado to take the waters as she will, is one so fully settled by this court that, even if the principle claimed by Colorado were much better founded, in reason, we should not feel it necessary to discuss it further.

Mr. Victor E. Keyes, Attorney General of the State of Colorado, *Mr. Delph E. Carpenter* and *Mr. Platt Rogers*, with whom *Mr. Leslie E. Hubbard*, *Mr. Fred Farrar*, *Mr. Julius C. Gunter* and *Mr. Ralph E. C. Kerwin* were on the briefs, for defendants.¹

The rights of the States here involved necessarily include the rights and claims of their respective citizens. *Kansas v. Colorado*, 206 U. S. 46, 85. It is as though the controversy were between independent Nations. *Missouri v. Illinois*, 180 U. S. 208; 200 U. S. 496; *Kansas v. Colorado*, 185 U. S. 125; 206 U. S. 46; *Rickey Land Co. v. Miller & Lux*, 218 U. S. 258; *Georgia v. Tennessee Copper Co.*, 206 U. S. 230, 237, 238. Nations have absolute dominion of everything within their boundaries, including the waters, and the property rights of the individual are

¹The case was argued on behalf of the defendants, at the hearing in 1916, by *Messrs. Farrar* (then Attorney General of Colorado), *Carpenter* and *Gunter*; and at the hearing in 1918, by *Messrs. Hubbard* (then Attorney General of Colorado), *Farrar*, *Carpenter* and *Rogers*.

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such only as the State may grant him. Vattel, Law of Nations (Chitty ed., 1872) pp. 53, 120, 123, 125, 148, 149, 163, 164; *The Exchange*, 7 Cr. 116, 136; *Rhode Island v. Massachusetts*, 12 Pet. 657, 733, 734.

Each State of the Union, new or original, has the same unlimited jurisdiction over persons and things within its territorial limits as any Nation, where that jurisdiction has not been surrendered to the United States by the Constitution. *New York v. Miln*, 11 Pet. 102, 139; *Chisholm v. Georgia*, 2 Dall. 419, 435; *Texas v. White*, 7 Wall. 700, 725; Taylor, Int. Law, § 124; Whart. Dig. Int. Law, § 1; *Pennoyer v. Neff*, 95 U. S. 722; *Kansas v. Colorado*, 206 U. S. 46, 93.

Each of the new States is possessed of the same powers and jurisdiction over the streams within its borders as were retained by the original States, and the sovereign powers exercised by Congress over the Territories passed to the new States upon their admission, including jurisdiction of streams within their borders, with the right to determine the use that may be made of their waters by individuals, except as Congress may control navigation. The uses recognized as limited property rights in the citizen have been determined by each State according to its own necessities, and fixed by its local laws and decisions; and the United States and its courts have adopted the state laws, regulations and court decisions, as the rules controlling within their respective jurisdictions. Congress, whenever it has legislated upon the subject with respect to public lands, has specifically recognized these local laws, customs and court decisions as controlling the regulation of streams within the States.

From the earliest decisions of this court to the present time, all uses of water for navigation, fisheries, power, domestic, irrigation, and other beneficial purposes, have been treated as within the sovereign jurisdiction and con-

trol of the several States, save alone for the federal control of navigation.¹

Acts of Congress and decisions of the courts and the Land Department, declare the jurisdiction of the public land States over the waters within their domain, in so far as the United States is concerned.²

¹ *Willson v. Blackbird Creek Marsh Co.*, 2 Pet. 245; *Martin v. Waddell*, 16 Pet. 367, 409, 410; *Pollard v. Hagan*, 3 How. 212, 220, 221; *Holyoke Co. v. Lyman*, 15 Wall. 500; *Barney v. Keokuk*, 94 U. S. 324; *McCready v. Virginia*, 94 U. S. 391; *Pound v. Turck*, 95 U. S. 459; *Escanaba Co. v. Chicago*, 107 U. S. 678; *Cardwell v. American Bridge Co.*, 113 U. S. 205; *St. Louis v. Myers*, 113 U. S. 566; *Hamilton v. Vicksburg, S. & P. R. R.*, 119 U. S. 280; *Willamette Bridge Co. v. Hatch*, 125 U. S. 1; *Geer v. Connecticut*, 161 U. S. 519; *Ward v. Race Horse*, 163 U. S. 504; *Manchester v. Massachusetts*, 139 U. S. 240; *Hardin v. Jordan*, 140 U. S. 371, 380; *Kaukauna Water Power Co. v. Green Bay Canal Co.*, 142 U. S. 254; *Shively v. Bowlby*, 152 U. S. 1, and cases cited; *Grand Rapids & Indiana R. R. Co. v. Butler*, 159 U. S. 87; *Lake Shore & Michigan Southern Ry. Co. v. Ohio*, 165 U. S. 365; *St. Anthony Falls Co. v. Water Commissioners*, 168 U. S. 349; *United States Freehold Land & Emigration Co. v. Diego Gallegos*, (U. S. C. C., Colo., 1898); *United States v. Rio Grande Co.*, 174 U. S. 690, 702-6; *Gutierrez v. Albuquerque Land Co.*, 188 U. S. 545, 552, 553; *Clark v. Nash*, 198 U. S. 361; *Manigault v. Springs*, 199 U. S. 473; *Whitaker v. McBride*, 197 U. S. 510; *Bacon v. Walker*, 204 U. S. 311; *Kansas v. Colorado*, 206 U. S. 46; *Georgia v. Tennessee Copper Co.*, 206 U. S. 230; *Hudson Water Co. v. McCarter*, 209 U. S. 349; s. c. 70 N. J. Eq. 525, 695; 3 Kinney, Irrigation, 2d ed., p. 2224; *Waldbridge v. Robinson*, 22 Idaho, 240; *Boquillas Cattle Co. v. Curtis*, 213 U. S. 339; *McGilvra v. Ross*, 215 U. S. 70; *Synder v. Gold Dredging Co.*, 181 Fed. 62; *Marshall Dental Co. v. Iowa*, 226 U. S. 460; *Scott v. Lattig*, 227 U. S. 229; *United States v. Cress*, 243 U. S. 316.

² Acts of July 26, 1866, 14 Stat. 253; July 9, 1870, 16 Stat. 218; March 3, 1877, 19 Stat. 377; March 3, 1891, 26 Stat. 1095; August 18, 1894, 28 Stat. 422; March 2, 1897, 29 Stat. 603; February 26, 1897, 29 Stat. 599; June 17, 1902, 32 Stat. 388; February 21, 1911, 36 Stat. 925; *Atchison v. Peterson*, 20 Wall. 507; *Basey v. Gallagher*, 20 Wall. 670; *Broder v. Water Co.*, 101 U. S. 274; *Jennison v. Kirk*, 98 U. S. 453, 456; *United States v. Rio Grande Co.*, 174 U. S. 690;

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The Colorado enabling act and the proclamation of the President, admit the State to the Union "on an equal footing with the original States in all respects whatsoever." 18 Stat. 474; 19 Stat. 665. The constitution, made in pursuance of the enabling act, and approved by the proclamation, declares that the water of every natural stream, not already appropriated, is the property of the public and dedicated to use of the people of the State, subject to appropriation as provided. It thus appears that, on her very admission, and as a part of the solemn transaction, Colorado asserted her full sovereign dominion over the waters of her streams, and that this assertion was then and there approved by the United States. These provisions of her constitution have been many times upheld by her courts;¹ and her claim to full jurisdiction over the waters within her borders has been repeatedly asserted by her legislature. (Citing many acts.) Wyoming has assumed the same attitude.² She, likewise, refuses to permit the diversion of waters in Wyoming for use in other jurisdictions.

The two States, therefore, are at one, in asserting full and exclusive sovereign control; in permitting usufructuary rights to their citizens according to the appropriation doctrine; and in denying these privileges to other States and their citizens.

Gutierrez v. Albuquerque Land Co., 188 U. S. 545; *Kansas v. Colorado*, 206 U. S. 46; *Boquillas Cattle Co. v. Curtis*, 213 U. S. 339; *Twin Falls Canal Co. v. Foote*, 192 Fed. 583; *Stanfield v. Umatilla River Water Users Assn.*, 192 Fed. 596; *Withdrawal of Public Lands for Irrigation Purposes*, 32 L. D. 254.

¹See *Wheeler v. Northern Colorado Irrig. Co.*, 10 Colo. 582; *Ft. Morgan Co. v. South Platte Co.*, 18 Colo. 1; *Stockman v. Leddy*, 55 Colo. 24.

²Wyo. Const., Art. VIII, §§ 1-5; Wyo. Comp. Stats. 1910, § 724, p. 247; *Farm Investment Co. v. Carpenter*, 9 Wyo. 110; (distinguishing *Willey v. Decker*, 11 Wyo. 496); *Grover Irrig. Co. v. Lovella Ditch Co.*, 21 Wyo. 204.

It might be said that the United States, in admitting these States with their constitutions as they are, gave recognition to their claims amounting to a grant. *Farm Investment Co. v. Carpenter*, 9 Wyo. 110. But their jurisdictions and rights are not so dependent, but rest directly on the Federal Constitution. *Stockman v. Leddy*, 55 Colo. 24; *Kansas v. Colorado*, 206 U. S. 46; *United States v. Hanson*, 167 Fed. 881.

The doctrines of riparian rights and of appropriation are local rules for determining the private rights of citizens in particular States—usufructuary rights in the property of the State, which, in the final analysis, must yield to the will of the State and her eminent domain.¹

They have no extra-territorial force, either for or against the State. Story, *Conflict of Laws*, c. 2, pp. 19-34; *Pennoyer v. Neff*, 95 U. S. 714, 720. The State has an interest, independent of and behind the title of its citizens. *Georgia v. Tennessee Copper Co.*, 206 U. S. 230; *Kansas v. Colorado*, 206 U. S. 46, 99; *Hudson Water Co. v. McCarter*, 209 U. S. 349, 354-357.

That private rights in waters of interstate streams cannot determine the rights of States *inter sese*, is recognized in *Rickey Land Co. v. Miller & Lux*, 218 U. S. 258, 260, 261; and *Bean v. Morris*, 221 U. S. 485. The assumption of concurrence or acquiescence made in those cases, whereby rights might be acquired in one State for enjoyment or use in another, cannot be applied in the case of Colorado. And the question of constitutional protection, passed in *Bean v. Morris*, *supra*, 488, cannot arise here, since, with the exception of one small appropriation, no

¹(a) Riparian rights. 3 Kent Com., § 439; 2 Black. Com., pp. 14, 18; *McCarter v. Hudson Water Co.*, 70 N. J. Eq. 525; 70 N. J. Eq. 695; s. c. 209 U. S. 349, 355; *St. Anthony Falls Co. v. Water Commissioners*, 168 U. S. 349; *Whitaker v. McBride*, 197 U. S. 510, 511.

(b) Rights by appropriation. *United States v. Rio Grande Co.*, 174 U. S. 690, 702; *Kansas v. Colorado*, 206 U. S. 46, 94.

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use whatever had been made of the waters of the Laramie River prior to the admission of Colorado, in 1876; and substantially all of the Wyoming development has occurred since that date, and a large part subsequent to the Colorado project here complained of.

Even were we to assume that Colorado had not, since 1876, expressly denied recognition of all extra-territorial claims, the fact remains that there is no concurrence of laws upon which to base a presumption of interstate servitudes. Both States assert full ownership and control over the waters within their borders and abolish the system of riparian rights. Beyond this the systems diverge.

The doctrines of riparian rights and of appropriation both are fundamentally inapplicable to the regulation of rights between States, which stand upon an equality "in all respects whatever," to the same degree as independent Nations. Each State depends for its existence primarily upon its natural resources, of which water, in the arid regions, is frequently the most valuable. Self defense compels the State to withhold its resources for the benefit of future as well as present generations and for the welfare and perpetuity of the State. With independent Nations, these natural resources, if need require, must be defended by the sword. But with States of the Union this court must determine the controversy. *Kansas v. Colorado*, 185 U. S. 125; 206 U. S. 46; *Missouri v. Illinois*, 180 U. S. 208; 200 U. S. 496.

If the rule of riparian rights were to control the settlement of this controversy, Colorado would be forever deprived of all but the most insignificant use of her own waters in the Laramie, and her fertile but arid lands would remain forever unproductive, by reason of the fact that only the lands of the narrow mountain valleys in Colorado are riparian; and these waters, imperative to her present and future development and welfare, would

pass forever into Wyoming, there to be used, enjoyed or wasted, or pass to the sea. On the other hand, by the doctrine of appropriation, if physical conditions had permitted, all waters of this stream, those rising in Wyoming included, might have been diverted within the latter State, and carried into and applied to land in Colorado; and, if all this were prior to Wyoming developments, Colorado could forever after prevent Wyoming from the use, not only of the Colorado waters, but of those rising in Wyoming as well.

Canals and diversion works are usually first constructed where no natural obstacles interfere. Infant Nations or States can little afford to undertake projects which, in their later history, their accumulated energies often accomplish with apparent ease. Prior appropriation is very frequently the accident of physical location; and, were the rule to apply between States, their destiny would be determined, not by their present or future necessities for use of their natural resources, but rather by accident. While, to be sure, the rule does apply to individuals within the State, in their case the preference of the first taker is within the governmental powers of the State; and, in disposing of its resources to the most ultimate good, inasmuch as the water, if parceled among the many, would benefit no one, the State may determine to whom the exclusive use may be given, in order ultimately to bring to the State and its people the greatest benefit with the least waste; and, furthermore, the State, whenever it may so desire, by the power of eminent domain, may take away all vested usufructuary rights and establish some new plan adapted to future conditions, only perhaps in the future to again condemn and establish still a different order of things.

But we can not agree that among Nations or States, with equal powers and sovereign rights, one may claim through its citizens, by mere first use, a preferred and

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exclusive right perpetually to use for its benefit waters rising within and flowing from the domain of its neighbor, thereby to deny forever to the Nation or State of origin a part or all of the benefit of its own stream, be its necessities ever so great. Waters that rise and flow from one State into another are forever lost to the former unless there used, and any rule which forbids this use denies to that State the benefit of its inherent sovereign right to enjoy its own and maintain itself within its domain. It would be, in effect, to invade and take the domain of one State and to give it to another, without consent or compensation. It would be the assertion by a foreign State of jurisdiction over a portion of the domain of another State.

The usufructuary rights of the individual citizen of Wyoming are defined by the constitution, laws and decisions of the courts of that State. But the local law of Wyoming can have no extra-territorial effect, and especially when prejudicial to the rights of other States. Story, Conflict of Laws, § 32, p. 29; *Farnum v. Blackstone Canal Co.*, 1 Sumner, 46, 62; *The Exchange*, 7 Cr. 116, 136; Cooley, Const. Lim., 7th ed., p. 176; *Hilton v. Guyot*, 159 U. S. 113. One State cannot expropriate property within the territory of another State. I Whart. Int. Law Digest, pp. 38, 39; *Crosby v. Hanover*, 36 N. H. 404, 423; *Holyoke Water Co. v. Connecticut River Co.*, 52 Conn. 570, 575, 576; *McCarter v. Hudson Water Co.*, 70 N. J. Eq. 695, 717.

The fundamental rule that one Nation cannot exercise its sovereign power and jurisdiction over the waters or domain of another Nation without its consent and cannot expropriate the waters of an upper Nation for the use of the lower Nation by claim of prior appropriation, even on an international river, has been recognized and followed by the United States in its relations with Mexico. 21 Ops. Atty. Gen. 280-283. When the United States, as a

matter of international policy but not of international law, settled the differences over the Rio Grande with Mexico, it took the precaution so to word the treaty that the adjustment could never be taken as a recognition of any lawful claims by Mexico. Treaty of May 1, 1906, Art. V, 34 Stat. 2953.

As we understand the term "equal," when used with reference to the States, it refers to that equality in the family of States which obtains with Nations in the family of Nations. Each State has an equal right, not only to govern itself, but as well to maintain itself and improve its domain, increase in population and promote for the present and for all time the general welfare of itself and its citizens. But if, (purely by way of illustration) we were to use a narrower construction, and say that equal States have the right to enjoy an equal part of an interstate stream, even then the doctrine of appropriation is inapplicable, for it takes from one State an exclusive (not equal) portion of the waters of the stream, and gives it to the other without remuneration.

Priority is a rule of the past and not of the future. States must look to the future more than to the past. *Hudson Water Co. v. McCarter*, 209 U. S. 349, 355. The State may find its future needs so imperative that it must extinguish, by eminent domain, even the usufructuary property rights it has permitted its citizens, and take the waters for a greater need. How, then, could the limited right of a State, determined upon rules of priority of appropriation, as regards another State, be reconciled with its future imperative necessities?

How solve the problem, if one State has adopted the law of appropriation and the other the modified doctrine of riparian rights? What would be the result, if the principle of appropriation were applied as between two appropriation States and, thereafter, one should change and adopt the common-law doctrine of riparian rights? De-

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termination of the rights of the various appropriators in the two States upon the basis of priority would be thrown into complete confusion. Neither State can legislate for or impose its own policy upon the other; Congress cannot enforce either rule upon any State.

The unnecessary loss, occasioned by depriving the State of origin of control of its waters, and by causing the water to pass down losing streams in order to supply some prior appropriator in another State, would appear to be wasteful, and inept, and so inequitable and unjust.

Could any advocate of the doctrine of appropriation regardless of state lines advance any hypothesis upon which a stream and its tributaries, like the Colorado River, flowing within or bordering six States and a foreign country, could be administered, and the water apportioned to the various appropriators in the seventeen hundred or more miles of its length, upon the basis of priority of appropriation?

If priority of right regardless of state lines is the principle which governs this controversy, how are the rights of the respective individuals in Wyoming and Colorado to be determined, having due regard to the conflicting laws of each State; and, after determination, how are they to be enforced? Possibly this court might appoint an officer or direct a United States marshal to organize a body of men to police the stream and divide the water according to the priorities which this court might undertake to adjudicate; but the very suggestion shows the absurdity of the contention. No such procedure was ever in contemplation either by Congress or by the respective States where water is used for irrigation. The entire adjudication and administration of priorities is founded, and has been constructed, on the theory of state control, and is utterly in conflict with any other theory. Manifestly, the doctrine of priority of appropriation does not adapt itself to interstate questions. Diversion and uses of water under the rule of priority require the most rigid police regulation.

The state courts, understanding as they do the local conditions and necessities, are in the best position to adjust conflicts between individual appropriators. But, if priorities must obtain irrespective of state lines, local courts will be shorn of their jurisdiction and some other court or tribunal will of necessity assume the task. The difficulties are greatly enlarged when appropriations by reservoirs and the complicated system of exchanging water are taken into the account. Taking the Platte River and its branches, for illustration, it may be estimated that administration under the rule of priority, irrespective of state lines, would require readjudication and police regulation of upwards of 4,000 diversions already established and decreed by state authorities in Colorado, Wyoming and Nebraska, and, in the years to come, probably a like number of new and now more or less incomplete enterprises. In view of the fact that the right of each appropriator is limited to his actual necessities each day, and that his diversions must constantly be regulated and restricted accordingly; and in view of the complications arising from exchanges and other administrative features existing upon each of the tributaries, as well as upon the stream itself; it is self-evident that the difficulties confronting interstate administration of the Platte River would become so involved that, to give each appropriator his just dues, and no more, and at the particular time his necessities demanded, would be next to impossible. If such should be declared to be the rule, the rights of all must be protected and enforced, the least must receive the same consideration as the greatest, and that, too, at the particular time when the crop demands water in order that loss may be avoided.

Yet state officials and tribunals are confined in power to their own borders, and bound by local laws, rules and regulations. They can not adjust conflicting claims or determine rights of foreign users. Different systems in

different States invite irreconcilable conflict and insoluble administrative problems.

If this court should decide that the private usufructuary rights of the individual appropriators preclude the States from asserting greater rights to the river, and that priority shall obtain irrespective of state lines, then such rights must be adjudicated by the court in this and similar cases. This would necessitate a determination not of the rights of the States, but of each individual claimant; and the rights of each, great or small, would have to be separately considered and passed upon. The mere suggestion of the problem portrays the insurmountable obstacles to be encountered.

Then, too, conditions are constantly changing. New and conflicting rules and laws may become imperative in Colorado, Nebraska and Wyoming. Who then shall enact these laws? The subject is no longer within the control of the States, because their jurisdiction has been denied them. Congress cannot legislate, for it has no power so to do. 206 U. S. 90-92. The canals divert waters from streams washing lands long since passed into private hands, and not public lands of the United States. This court cannot legislate. Who then shall remedy the evil or supply the new rule?

It would seem, from the opinion in *Kansas v. Colorado*, 206 U. S. 46, that any doctrine of equitable apportionment of the waters of rivers between States must be founded upon a broad basis of equitable consideration of all the facts of each case as they appear, with full regard to the equal rights of States of equal dignity, powers and jurisdiction, and not upon the narrower basis of local laws governing mere usufructuary rights of private citizens. But even though we here construe that decision within the narrower limits and assume an equal apportionment of the waters of the stream, we here find that the Laramie River rises not in one but in both States. The waters of

the Wyoming part of the stream, as well as those of the Colorado branch, are available to Wyoming and her citizens. On the other hand, natural conditions are such that Colorado is limited to use of but a part (91/250) of the waters of that branch which rises and flows within her borders. Whatever the injury might be to Wyoming (though none has been proved), this would not appear to be an inequitable use of her own resources by Colorado.

A greater degree of caution is manifest in such controversies as this, than would obtain in suits between citizens within the same or different jurisdictions. The complaining State should be required to establish the injury and its right to relief upon the clearest and most indisputable testimony, before this court would be warranted in preventing the other State from exercising its sovereign control over its natural resources. *Missouri v. Illinois*, 180 U. S. 208, 248.

Wyoming has wholly failed to prove the allegations of her bill, and even more, has by her own conduct denied her charges against Colorado by permitting appropriations for and authorizing construction of many new and enormous enterprises in Wyoming, long junior to the Colorado enterprise of which she complains and drawing water from the same stream; and, irrespective of other conclusive proof, has thereby admitted that there was and is ample water in the stream to supply all appropriations junior, as well as senior, to the Colorado enterprise, and that no injury could result to senior appropriations in Wyoming by reason of the Colorado diversion; and that by her official acts, she has contributed to the very depletion whereof she complains. Further, the proof shows that, not only is there ample water in the stream for use of all Wyoming enterprises, but, as well, that Wyoming needlessly wastes more water than will be withdrawn from the stream by Colorado. And, furthermore, the proof reveals, without contradiction, that Wyoming is not only

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diverting from the drainage of the Cache la Poudre over into that of the Laramie, but generally recognizes and permits such diversions, by official sanction and decrees of her courts, within her own territory, and by means thereof she has been able to effect her most valuable reclamation and development. No proof was offered in support of her claims as a riparian owner and, on the other hand, by her constitution, laws and decisions of her courts, she has abolished and denied any such; and, lastly, she has offered no sufficient proof whereby this court could adjudicate and determine the relative rights of appropriation within either Wyoming or Colorado, if such a rule as she alleges were here applied.

*Mr. Assistant Attorney General Riter, with whom Mr. Solicitor General Beck and Mr. John F. Truesdell, Special Assistant to the Attorney General, were on the brief, for the United States.*¹

The attitude of the executive branch of the Government is, briefly, that the United States has not surrendered to the States or parted in any way with its original right to use the surplus waters (those not appropriated by others under its own laws) of innavigable streams in the Western States; that the United States is, and always has been, since the cession of the territories now comprised in those States, the owner of all the unappropriated and surplus waters; that the appropriated waters there have been granted by the United States under its own laws, using local customs and state laws as subordinate instrumentalities only; that the rights of the States, both as the actual owners of lands granted to them and as the ultimate owners of the property of their citizens, so far as

¹ *Mr. Solicitor General Davis* argued the case on behalf of the United States, at the hearing in 1918. *Mr. Assistant Attorney General Kearful, Mr. Truesdell, and Mr. Ethelbert Ward, Special Assistant to the Attorney General, were with him on the brief.*

they may be said to be such owners, are confined to such water rights as have been granted by the United States to them or their citizens under the laws of Congress; and that controversies such as this should be decided upon the basis of such federal grants, and without regard to state boundaries.

As for the effect of these questions upon the public interests and governmental policies of the United States, we think it sufficient here to call attention to the vast areas of land still belonging to the United States; to the fact that much of it is in the arid region where land without water to irrigate it, is of little value; to the federal reclamation policy, which depends upon federal use of both land and water and often upon federal use of interstate streams; to the federal Indian policy, where the Government's ability to protect its Indian wards depends largely upon its ownership and control of the waters on reservations and other Indian lands; and, finally, to the fact that, if the water on these public lands be held to belong to the States, the Federal Government will be at the mercy of the States and be helpless as to these policies in a very real sense, because, while under our system the States are represented in and have a powerful influence upon the Federal Government, the United States is not in any way represented in the States, and, both theoretically and as a practical matter can not control or even influence their action.

The United States retains its original plenary ownership of the right of use of innavigable waters in the Western States, except in so far as it has parted with it through acts of Congress; and this property, like the property in the public lands generally, is wholly immune from state interference or control. The state power affects only those rights which have been granted by Congress.

We respectfully suggest the necessity of keeping separately in mind the two questions of, first, whether the

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United States or the States own the right of use of the innavigable waters in the Western States, and, second, the effect of a decision of that question upon the rights of these two opposing States in the waters of an interstate stream. It is our contention that federal ownership controls, and offers a logical and workable solution of this question of rights between the States; but, even if we should be wrong in this, we deem it clear that the United States owns the right of use of the waters in and on its public lands within the States, just as it owns the lands themselves, and that such ownership should not be thrown in doubt by any decision as to the broader question of the rights between States.

Upon the acquisition of the territory now comprised within the Western States, the United States became vested with all property rights in that territory except vested private rights and such Indian rights as the United States might choose to recognize. Therefore, whatever property rights exist in water in that territory, whether the water be navigable or innavigable, belonged to the United States until the creation of the States; and, furthermore, such rights are still federal property, notwithstanding the creation of the States unless, first, they are of such a character as to go to the States upon their mere creation as such and because of the character of state sovereignty, or unless, second, they have been granted to the States or to private persons under acts of Congress.

Property rights in navigable waters and their shores and beds become vested in the States on their creation, as a part of their sovereignty, but the rule is different as to nonnavigable waters and their places of occurrence. The States take no property rights in them. Such waters are not *publici juris*, and title to their use is the same as title to land.

Because of its fugitive nature, the only property rights which exist in water in its natural state are rights of use,

the corpus being only susceptible of ownership while in possession. This corpus while in possession is personal property, but the right of use of the water in its natural state is a real property right of the highest dignity and value. *Tyler v. Wilkinson*, 4 Mason, 397; *Embrey v. Owen*, 6 Ex. 352; 20 L. J. Ex. 212; *Hargrave v. Cook*, 108 Cal. 72; *Smith v. Rochester*, 92 N. Y. 463, 480; *Gardner v. Newburgh*, 2 Johns. Ch. 162, 166; *Insurance Co. v. Childs*, 25 Colo. 360, 363; *Davis v. Randall*, 44 Colo. 488, 492. 3 Kent. Com. p. 439; Wiel, *Water Rights*, 3d ed., p. 755; § 711, p. 777 *et seq.*, and numerous cases cited; § 283, p. 298; § 285, p. 301; Long, *Irrigation*, 2d ed., § 34, p. 70; 2 Kinney, *Irrigation*, 2d ed., § 769, p. 1328; Washburn, *Easements*, 4th ed., pp. 316, 317; 2 Washburn, *Real Property*, 6th ed., § 1284.

Because of the necessity of protecting the public interests therein (mainly navigation and fishery), property rights in navigable waters in England belonged *prima facie* to the Crown; and in this country they belong *prima facie* to the municipal sovereignties, the States. The Federal Government, though having full control (under the commerce clause) for purposes of foreign and interstate navigation; has no right of property in such waters, or their shores or beds, except as it derives it from the States, either by grant or under operation of state law. *Shively v. Bowlby*, 152 U. S. 1, 15, 46, 48; *Hardin v. Jordan*, 140 U. S. 371, 381; *United States v. Chandler-Dunbar Co.*, 229 U. S. 53, 63; *United States v. Rio Grande Co.*, 174 U. S. 690.

The crux of the question we are examining is whether innavigable waters are *publici juris*, like navigable waters. Ownership by the States depends upon showing that they are. Such waters are not *publici juris* and ownership of usufructuary rights therein rests upon the same basis and is of the same character as ownership of land. In the first place, it is to be noted that it is now decided beyond any

further possibility of question that the beds and shores of innavigable streams and lakes, even though they are meandered, are owned as ordinary upland is owned, and are not owned by the States. Title to such lands in the public land States comes from the United States and not from the States. *Hardin v. Shedd*, 190 U. S. 508. The fact that this court holds that the grantee of the upland from the United States takes to the thread of the stream or not in accordance with the state law, using such law as a rule of convenience merely, in no way weakens this statement. The title comes from the United States, and it is perfectly competent for Congress to change this rule of convenience applied to the grants of the United States if it sees fit. [Cf. *Oklahoma v. Texas*, 258 U. S. 574; *Brewer-Elliott Oil Co. v. United States*, 260 U. S. 77. Reporter.]

As to the property rights in these innavigable waters themselves, it is to be observed, first, that diffused surface waters and all underground waters were originally looked upon by the law as part and parcel of the soil, and as belonging to its owner. The tendency now is to recognize these waters as distinct from the soil, and as being susceptible of ownership, when out of possession, only as to usufructuary rights therein. Furthermore, the tendency is to treat such rights, not only as interlocking with the rights in the streams and lakes which the underground waters support, but also (even, we think, in the pure appropriation States) as belonging to the several owners of the lands which have access to them. *Wiel*, Water Rights, §§ 1090, 1124.

Turning to the innavigable surface streams and lakes, it will be found that, in England, it was recognized, at least as early as Lord Hale's time; that the proprietary right in the use and flow of such waters was not in the Crown. Unlike navigable waters, they did not at common law belong *prima facie*, or of common right, to the

sovereign, but did so belong to private persons just as land did. The rule was, and is, the same in our original States; and so, following the same principle upon which this court decided that navigable waters and their shores and beds go to the new States, as well as to the original ones, since it is the States which under our system are the possessors of municipal sovereignty (*Pollard v. Hagan*, 3 How. 212, 229, and *Shively v. Bowlby*, 152 U. S. 1), we see that neither the new States, nor the original thirteen, have any property rights in innavigable waters by virtue of their sovereignty, or have any different kind of power whatever over them than they have over land. *Smith v. Rochester*, 92 N. Y. 463, 473; *Gardner v. Newburgh*, 2 Johns Ch. 162, 166; Lord Hale's de Jure Maris, with Judge Cowan's note to *Ex parte Jennings*, 6 Cow. 536, 539-546; *Watuppa Reservoir Co. v. Fall River*, 147 Mass. 548, 554, 555, 558, 561; *Home of Aged Women v. Commonwealth*, 202 Mass. 422, 433-434; *Opinions of Justices*, 118 Me. 503, 506, 507; *Wadsworth v. Smith*, 11 Me. 278, 280, 281; *Chapman v. Kimball*, 9 Conn. 38, 40, 41; *Barclay R. R. Co. v. Ingham*, 36 Pa. St. 194, 200, *et seq.*; Angell, *Water Courses*, 6th ed., pars. 2, 535; Gould, *Waters*, 3d ed., par. 46; *Cobb v. Davenport*, 32 N. J. L. 369; *Simmons v. Paterson*, 60 N. J. Eq. 385, 389; *Attorney General v. Delaware &c. R. R. Co.*, 27 N. J. Eq. 631, 638; *Doremus v. Paterson*, 65 N. J. Eq. 711, 712. Contra, in part: *McCarter v. Hudson Water Co.*, 70 N. J. Eq. 695, affirmed by this court on other and broader grounds. 209 U. S. 349.

General expressions by some of the early writers, and also the existence of prescriptive rights, for a time left some doubt as to whether water, as such, was not *publici juris*, and also as to whether the riparian owner's right to divert the waters on which his land bordered was not dependent in some way upon actual appropriation. Whatever doubt existed in that respect was put at rest in England by a series of cases of which *Mason v. Hill*, 5

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Barn. & Adol. 1, 23, 24, decided by Lord Denman in 1833, was perhaps the most important. In this country the question had already been disposed of by Mr. Justice Story in *Tyler v. Wilkinson*, 4 Mason, 397. Since those cases, it has been settled that, under the common law, both in England and in the United States, the usufructuary rights to innavigable waters belong to the owners of the land bordering on them; that the rights of such owners in the water are in no way dependent upon its use; that such waters are in no proper sense *publici juris*, as, for instance, navigable waters are; that the water right is part and parcel of the title to land itself; and that title to such usufructuary right has the same origin as the title to the land. *Embrey v. Owen*, 6 Ex. 352, 368; 20 L. J. Ex. 212; *Ferguson v. Shirreff*, 6 Dunlop, 1355, 1374 (Scot's Rev. Reps.)

Undoubtedly the States have the power to control individuals in their use of water. Whatever the power is, it is limited by the provisions of the Fourteenth Amendment protecting vested rights. The power is the same as that which the State has over vested rights in lands. Water rights, under both the appropriation and the riparian doctrines, are vested rights in real property, which can be lost only by grant, condemnation, prescription, or abandonment. The ways in which this power of the State is exercised, of course, will differ in accordance with the kind of property the use of which is to be affected or controlled. Thus, we have regulations limiting the use of land for the public good that would not be at all applicable to water, and, vice versa, we have regulations concerning water that could not apply to land. *Wiel, Water Rights*, pp. 196, 197; *Robertson v. People*, 40 Colo. 119, 124; *Broad Run Co. v. Duel Co.*, 47 Colo. 573, 579; *Combs v. Farmers Co.*, 38 Colo. 420, 428.

The argument based on the necessities of the arid region wrongly assumes that the riparian system is not suited to

western conditions and that, therefore, the States can dispose of the federal property in water. We think it sufficient here to point out that the main principle of the riparian system is equality of right between the riparian owners; that they among them own the entire right of use of the stream; that any proper use under the circumstances, including, of course, irrigation, is permitted; that rights exactly like appropriation rights can be and frequently are created by grant or condemnation of rights of the riparian owners; that the appropriation system, so called, is not so much a system of owning and using rights as it is a means of acquiring them; that it is an open question whether the correlative rights of the riparian system are not better suited to an irrigation community than the sometimes more definite and less related appropriation rights; and finally, that both classes of rights are now being created out of, and logically rest, under our theory, upon the original federal ownership of riparian rights, and that the argument for state ownership is merely one that it would be better to allow the States to dispose of this class of federal property, and is as applicable to lands as to water.

The fundamental principle of water law, that the corpus of water can only be the subject of ownership while in possession, and that, therefore, water itself in its natural state is owned by no one, has no effect upon the question of whether the title to the usufructuary right therein belongs to the State as a part of its sovereignty.

Water rights now vested in others derive their existence, like titles to land, from the acts of Congress. All interest in water not so granted necessarily remains in the United States. The acts grant nothing to the States, and ratification of state constitutions asserting state ownership of water does not divest the United States of its property rights therein. The earliest acts of Congress affecting innavigable waters show full consciousness of power to deal with

such waters on the public lands. Rev. Stats. § 2476. Acts of May 18, 1796, 1 Stat. 468; March 3, 1803, § 17, 2 Stat. 235; February 20, 1811, § 3, 2 Stat. 642; and March 3, 1811, § 12, 2 Stat. 666; *Railroad Co. v. Schurmeir*, 7 Wall. 272, 289; *Scott v. Lattig*, 227 U. S. 229, 242; *Hardin v. Shedd*, 190 U. S. 508, 519. Since the passage of the Act of July 26, 1866, 14 Stat. 251, the disposition of such waters on the public lands has been controlled by that act and by the local laws and customs used as its subordinate instrumentalities. The occasion of this legislation was the extensive occupation and exploitation of the public lands in the West following the discovery of gold in California. The need was to legalize appropriations of mineral land, rights of way, and water rights already made under local customs and laws, and to provide for the future acquisition of rights of the same character in the same manner. *Jennison v. Kirk*, 98 U. S. 453; *Atchison v. Peterson*, 20 Wall. 507; *Basey v. Gallagher*, 20 Wall. 670; *Broder v. Water Co.*, 101 U. S. 274; *Wiel*, Water Rights, § 66, *et seq.*; § 92, *et seq.*; 1 *Kinney*, Irrigation, §§ 596, 611, 636, *et seq.* To meet this situation the Act of 1866 and the supplementary Act of 1870, 16 Stat. 217, were passed. Congress had already provided adequate means for the acquisition of the government title to agricultural lands by passing the Homestead Act in 1862.

The relation of the Acts of 1866 and 1870 to water rights and waterways was precisely the same as their relation to the mineral lands. Their mining features were crude and were superseded by the more detailed Act of May 10, 1872, 17 Stat. 91, in which, however, the policy of favoring local laws and granting mining rights in accordance therewith is adhered to. The water features of the original acts are still in force. That the Act of 1866 provides a means for the future acquisition of rights, water as well as mining, is the settled holding of the

courts, and made perfectly clear by the Act of 1870. *Jacob v. Lorenz*, 98 Cal. 332, 335; *Beaver Brook v. St. Vrain*, 6 Colo. App. 130, 138; *Wiel*, Water Rights, § 99, p. 116; *Long*, Irrigation, § 74, p. 134.

This legislation is the foundation of all water rights in the Western States today and provides a solution and, we think, the only solution, of the problem of interstate streams. Mineral lands are held open to "exploration and occupation", and he who occupies is given the right to take the other steps which lead to a grant. Water rights are protected and preserved to whoever has possessed them. Local laws, rules, and customs are used in both cases to define the right and provide the course that must be followed to acquire it. The mineralized vein is recognized, as it was before by the customs of the miners, as being the thing appropriated, and so the right is given to follow it regardless of the surface limits of the claim extending vertically downward, which ordinarily define the extent of land holdings. In the field of water rights, again in accordance with local customs, the one who first "appropriates," even for use on nonriparian lands, is given the better right. Both as to mining and water, however, the rights granted are only such as any proprietor of the whole property involved could grant, and the rule of priority is only that which necessarily follows from successive conveyances of defined parts of a whole.

Further, it should be observed that, under this act, the proprietor, the United States, in a way holds its landed estate for conveyance in three classes—mineral rights, water rights, and what may be called, for convenience, ordinary land rights. It holds all of these rights for conveyance separately or together, as the case may be. Consequently, and generally speaking, riparian rights pass or not, under a patent of riparian land, according to whether or not the riparian doctrine or the appropriation doctrine is the rule in the locality where the land is situ-

ated. Congress has provided that it shall be otherwise in the Black Hills Forest Reserve in South Dakota (34 Stat. 233, 234).

It is well understood that the local rules, whether found in miners' customs, court decisions, or legislative acts, were adopted merely to supplement the particular provisions and fundamental conditions of the act, in order to fit it to local conditions, including local preferences, and avoid unnecessary complexity and volume in the act itself. This plan of adopting local laws or rules as the laws and rules of Congress is familiar enough. It is seen in the legislation defining crimes on reservations under exclusive jurisdiction of the General Government; in the conformity provisions governing the federal courts in common-law cases; in various laws for the taking of affidavits, etc. Illustrations might be greatly multiplied. *Lindley on Mines*, 2d ed., § 249; *Butte City Water Co. v. Baker*, 196 U. S. 125; *Clason v. Matko*, 223 U. S. 646, 654.

It is somewhat astonishing to find *Broder v. Water Co.*, 101 U. S. 274, and *Jennison v. Kirk*, 98 U. S. 453, 456, cited in Colorado's brief as authority for the idea that the Act of 1866 recognized an independent title or power in the States. They hold exactly the reverse. See *Union Co. v. Ferris*, 2 Sawy. 176, 184; 1 Wiel, *Water Rights*, § 97, p. 113; § 155, p. 177 *et seq.*; Long, *Irrigation*, § 74, p. 134. The grant is made directly to the individual appropriator. It takes effect upon his bringing himself within its terms by complying with the local laws. No patent follows as in the case of mining claims, but the title passes by virtue of the statute itself and compliance with it, as is the case with grants of rights of way. Yale, *Mining and Water Rights*, p. 380.

The law of water rights in California and the numerous States which have followed her lead is based squarely upon the federal title. 1 Wiel, *Water Rights*, p. 226; *Lux v. Haggin*, 69 Cal. 255, 338; *Benton v. Johncox*, 17

Wash. 277, 289; *Morgan v. Shaw*, 47 Ore. 333, 337; *Smith v. Denniff*, 24 Mont. 20, 21; *Barkley v. Tieleke*, 2 Mont. 59, 64; *Cruse v. McCauley*, 96 Fed. 369, 373-374; *Howell v. Johnson*, 89 Fed. 556, 558. Colorado and the other pure appropriation States (1 Wiel, *Water Rights*, p. 226), endeavor to find some basis for water rights other than the federal title. In those States water rights are identical with appropriation rights in California and the other dual system States, and, of course, are derived, as they are there, from the United States by grants under this act. Subsequent acts of Congress contradict the theory that federal ownership has been abdicated. Kinney, *Irrigation*, § 637, and pp. 1091, 1095; *Hough v. Porter*, 51 Ore. 318; *Gutierrez v. Albuquerque Land Co.*, 188 U. S. 545, 552-554; Acts of March 3, 1877, 19 Stat. 377; August 18, 1894, 28 Stat. 422; June 4, 1897, 30 Stat. 11, 36; February 26, 1897, 29 Stat. 599; March 2, 1897, 29 Stat. 603; June 17, 1902, 32 Stat. 388.

The legislation of Congress, with regard to water rights, all centers upon, and is intended to preserve, the policy adopted in the Act of 1866. It is the long continuance of subordinate state control, under a system that involves no recourse to the source of power, that has caused the fact that such control is subordinate sometimes to be lost sight of.

Ratification of state constitutions asserting state ownership of waters does not divest the United States of its property rights therein. Colo. Const., Art. XVI, § 6; *Coyle v. Oklahoma*, 221 U. S. 559, 568; *Ex parte Webb*, 225 U. S. 663, 690; *Wilcox v. McConnell*, 13 Pet. 498, 516; Kinney, *Irrigation*, § 388, p. 660.

The question whether the United States or the States own the water of innavigable streams in the West has never been directly passed upon by this court. The cases support federal ownership. Wiel, *Water Rights*, pp. 183, 194, 223; Kinney, *Irrigation*, § 640; Long, *Irrigation*, § 74,

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p. 134; *Atchison v. Peterson*, 20 Wall. 507; *Basey v. Gallagher*, 20 Wall. 670; *Sturr v. Beck*, 133 U. S. 541; *United States v. Rio Grande Co.*, 174 U. S. 690, 704; *Gutierrez v. Albuquerque Land Co.*, 188 U. S. 545; *Kansas v. Colorado*, 206 U. S. 46; *Winters v. United States*, 207 U. S. 564; *Boquillas Land Co. v. Curtis*, 213 U. S. 339.

Upholding of state ownership would disintegrate the law and destroy federal interests without working any practical good to the States.

This controversy, as one involving an interstate stream, should be decided upon the basis of the federal ownership of lands and waters, thereby confining the ownership of the States, as ultimate proprietors, to such water rights as have been or may be granted to the respective States for themselves or for use in connection with the lands within their borders. In practice the Federal Government disregards state lines in the use and control of waters for its own purposes; and state lines have been equally disregarded in the grant, and acquisition, and use, of private water rights in the Western States; so a division of water between the States, making state lines controlling, would interfere with the federal use of water and seriously modify, or destroy, existing vested rights. These rights, being grants from the paramount sovereignty, should be upheld as against the claim that the States, which enjoy a quasi sovereignty only, should be treated in this respect as independent Nations.

MR. JUSTICE VAN DEVANTER delivered the opinion of the court.

This is an original suit in this court by the State of Wyoming against the State of Colorado and two Colorado corporations to prevent a proposed diversion in Colorado of part of the waters of the Laramie River, an interstate stream. The bill was brought in 1911, the evidence was

taken in 1913 and 1914, and the parties put it in condensed and narrative form in 1916 preparatory to the usual printing. The case has been argued at the bar three times. The court directed one reargument because of the novelty and importance of some of the questions involved, and the other because of an intervening succession in the office of Chief Justice. As the United States appeared to have a possible interest in some of the questions, the court also directed that the suit be called to the attention of the Attorney General; and, by the court's leave, a representative of the United States participated in the subsequent hearings.

The Laramie is an innavigable river which has its source in the mountains of northern Colorado, flows northerly 27 miles in that State, crosses into Wyoming, and there flows northerly and northeasterly 150 miles to the North Platte River, of which it is a tributary. Both Colorado and Wyoming are in the arid region where flowing waters are, and long have been, commonly diverted from their natural channels and used in irrigating the soil and making it productive. For many years some of the waters of the Laramie River have been subjected to such diversion and use, part in Colorado and part in Wyoming.

When this suit was brought the two corporate defendants, acting under the authority and permission of Colorado, were proceeding to divert in that State a considerable portion of the waters of the river and to conduct the same into another watershed, lying wholly in Colorado, for use in irrigating lands more than fifty miles distant from the point of diversion. The topography and natural drainage are such that none of the water can return to the stream or ever reach Wyoming.

By the bill Wyoming seeks to prevent this diversion on two grounds: One that, without her sanction, the waters of this interstate stream cannot rightfully be taken from

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its watershed and carried into another where she never can receive any benefit from them; and the other that through many appropriations made at great cost, which are prior in time and superior in right to the proposed Colorado diversion, Wyoming and her citizens have become and are entitled to use a large portion of the waters of the river in the irrigation of lands in that State and that the proposed Colorado diversion will not leave in the stream sufficient water to satisfy these prior and superior appropriations, and so will work irreparable prejudice to Wyoming and her citizens.

By the answers Colorado and her co-defendants seek to justify and sustain the proposed diversion on three distinct grounds: First, that it is the right of Colorado as a State to dispose, as she may choose, of any part or all of the waters flowing in the portion of the river within her borders, "regardless of the prejudice that it may work" to Wyoming and her citizens; secondly, that Colorado is entitled to an equitable division of the waters of the river and that the proposed diversion, together with all subsisting appropriations in Colorado, does not exceed her share; and, thirdly, that after the proposed diversion there will be left in the river and its tributaries in Wyoming sufficient water to satisfy all appropriations in that State whose origin was prior in time to the effective inception of the right under which the proposed Colorado diversion is about to be made.

Before taking up the opposing contentions a survey of several matters in the light of which they should be approached and considered is in order.

Both Colorado and Wyoming are along the apex of the Continental Divide and include high mountain ranges where heavy snows fall in winter and melt in late spring and early summer,—this being the chief source of water supply. Small streams in the mountains gather the water from the melting snow and conduct it to larger streams

below which ultimately pass into surrounding States. The flow in all streams varies greatly in the course of the year, being highest in May, June and July and relatively very low in other months. There is also a pronounced variation from year to year. To illustrate, the gaging of the Cache la Poudre, a typical stream, for 1912 shows that the total flow for May, June and July was more than three times that for the nine other months, and the gaging for a period of 30 years shows that the yearly flow varied from 151,636 to 666,466 acre-feet¹ and was in excess of 400,000 acre-feet in each of four years and less than 175,000 acre-feet in each of five years. Both States have vast plains and many valleys of varying elevation where there is not sufficient natural precipitation to moisten the soil and make it productive, but where, when additional water is applied artificially, the soil becomes fruitful,—the reward being generous in some areas and moderate in others, just as husbandry is variously rewarded in States where there is greater humidity, such as Massachusetts, Virginia, Ohio and Tennessee. Both States were Territories long before they were admitted into the Union as States and while the territorial condition continued were under the full dominion of the United States. At first the United States owned all the lands in both and it still owns and is offering for disposal millions of acres in each.

Turning to the decisions of the courts of last resort in the two States, we learn that the same doctrine respecting the diversion and use of the waters of natural streams has prevailed in both from the beginning and that each State attributes much of her development and prosperity to the practical operation of this doctrine. The relevant views of the origin and nature of the doctrine, as shown in these decisions, may be summarized as follows: The

¹ An acre-foot is the quantity of water required to cover an acre to a depth of one foot—43,560 cubic feet.

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common-law rule respecting riparian rights in flowing water never obtained in either State. It always was deemed inapplicable to their situation and climatic conditions. The earliest settlers gave effect to a different rule whereby the waters of the streams were regarded as open to appropriation for irrigation, mining and other beneficial purposes. The diversion from the stream and the application of the water to a beneficial purpose constituted an appropriation, and the appropriator was treated as acquiring a continuing right to divert and use the water to the extent of his appropriation, but not beyond what was reasonably required and actually used. This was deemed a property right and dealt with and respected accordingly. As between different appropriations from the same stream, the one first in time was deemed superior in right, and a completed appropriation was regarded as effective from the time the purpose to make it was definitely formed and actual work thereon was begun, provided the work was carried to completion with reasonable diligence. This doctrine of appropriation, prompted by necessity and formulated by custom, received early legislative recognition in both Territories and was enforced in their courts. When the States were admitted into the Union it received further sanction in their constitutions and statutes and their courts have been uniformly enforcing it. *Yunker v. Nichols*, 1 Colo. 551; *Schilling v. Rominger*, 4 Colo. 100; *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443; *Thomas v. Guiraud*, 6 Colo. 530; *Strickler v. Colorado Springs*, 16 Colo. 61; *Oppenlander v. Left Hand Ditch Co.*, 18 Colo. 142; *Wyatt v. Larimer, & Weld Irrigation Co.*, 18 Colo. 298; *Crippen v. White*, 28 Colo. 298; *Moyer v. Preston*, 6 Wyo. 308; *Farm Investment Co. v. Carpenter*, 9 Wyo. 110; *Willey v. Decker*, 11 Wyo. 496; *Johnston v. Little Horse Creek Irrigating Co.*, 13 Wyo. 208.

As the United States possessed plenary authority over Colorado and Wyoming while they were Territories and

has at all times owned the public lands therein, we turn next to its action.

The Act of July 26, 1866, c. 262, § 9, 14 Stat. 251, contained a section providing: "Whenever, by priority of possession, rights to the use of water for mining, agricultural, manufacturing, or other purposes, have vested and accrued, and the same are recognized and acknowledged by the local customs, laws, and the decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same." The occasion for this provision and its purpose and effect were extensively considered by this court in the cases of *Atchison v. Peterson*, 20 Wall. 507, and *Basey v. Gallagher*, 20 Wall. 670, the conclusions in both being shown in the following excerpt from the latter, pp. 681-682:

"In the late case of *Atchison v. Peterson*, we had occasion to consider the respective rights of miners to running waters on the mineral lands of the public domain; and we there held that by the custom which had obtained among miners in the Pacific States and Territories, the party who first subjected the water to use, or took the necessary steps for that purpose, was regarded, except as against the government, as the source of title in all controversies respecting it; that the doctrines of the common law declaratory of the rights of riparian proprietors were inapplicable, or applicable only to a limited extent, to the necessities of miners, and were inadequate to their protection; that the equality of right recognized by that law among all the proprietors upon the same stream, would have been incompatible with any extended diversion of the water by one proprietor, and its conveyance for mining purposes to points from which it could not be restored to the stream; that the government by its silent acquiescence had assented to and encouraged the occupation of the public lands for mining; and that he who first connected his labor with property thus situated

and open to general exploration, did in natural justice acquire a better right to its use and enjoyment than others who had not given such labor; that the miners on the public lands throughout the Pacific States and Territories, by their customs, usages, and regulations, had recognized the inherent justice of this principle, and the principle itself was at an early period recognized by legislation and enforced by the courts in those States and Territories, and was finally approved by the legislation of Congress in 1866. The views there expressed and the rulings made are equally applicable to the use of water on the public lands for purposes of irrigation. No distinction is made in those States and Territories by the custom of miners or settlers, or by the courts, in the rights of the first appropriator from the use made of the water, if the use be a beneficial one."

And on the same subject it was further said, in *Broder v. Water Co.*, 101 U. S. 274, 276:

"It is the established doctrine of this court that rights of miners, who had taken possession of mines and worked and developed them, and the rights of persons who had constructed canals and ditches to be used in mining operations and for purposes of agricultural irrigation, in the region where such artificial use of the water was an absolute necessity, are rights which the government had, by its conduct, recognized and encouraged and was bound to protect, before the passage of the act of 1866. We are of opinion that the section of the act which we have quoted was rather a voluntary *recognition of a pre-existing right of possession*, constituting a valid claim to its continued use, than the establishment of a new one."

The Act of July 9, 1870, c. 235, § 17, 16 Stat. 217, provided that "all patents granted, or preemption or homesteads allowed, shall be subject to any vested and accrued water rights" acquired under or recognized by the provision of 1866. These provisions are now §§ 2339 and 2340 of the Revised Statutes.

The Act of March 3, 1877, c. 107, § 1, 19 Stat. 377, providing for the sale of desert lands in tracts of one section each to persons undertaking and effecting their reclamation, contained a proviso declaring that "the right to the use of water by the person so conducting the same, on or to any tract of desert land of six hundred and forty acres shall depend upon *bona fide* prior appropriation: and such right shall not exceed the amount of water actually appropriated, and necessarily used for the purpose of irrigation and reclamation: and all surplus water over and above such actual appropriation and use, together with the water of all lakes, rivers and other sources of water supply upon the public lands and not navigable, shall remain and be held free for the appropriation and use of the public for irrigation, mining and manufacturing purposes subject to existing rights." Colorado was not at first included in this act, but was brought in by an amendatory act. Next came the Act of March 3, 1891, c. 561, § 18, 26 Stat. 1095, granting rights of way through the public lands and reservations for canals and ditches to be used for irrigation purposes, and containing a proviso saying, "the privilege herein granted shall not be construed to interfere with the control of water for irrigation and other purposes under authority of the respective States or Territories."

Of the legislation thus far recited it was said, in *United States v. Rio Grande Dam & Irrigation Co.*, 174 U. S. 690, 706: "Obviously by these acts, so far as they extended, Congress recognized and assented to the appropriation of water in contravention of the common law rule as to continuous flow"; and again, "the obvious purpose of Congress was to give its assent, so far as the public lands were concerned, to any system, although in contravention to the common law rule, which permitted the appropriation of those waters for legitimate industries."

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June 17, 1902, c. 1093, 32 Stat. 388, the National Reclamation Act was passed, under which the United States entered upon the construction of extensive irrigation works to be used in the reclamation of large bodies of arid public lands in the western States. Its eighth section declared: "Nothing in this act shall be construed as affecting or intended to affect or to in any way interfere with the laws of any State or Territory relating to the control, appropriation, use, or distribution of water used in irrigation, or any vested right acquired thereunder, and the Secretary of the Interior, in carrying out the provisions of this Act, shall proceed in conformity with such laws, *and nothing herein shall in any way affect any right of any State or of the Federal Government or of any landowner, appropriator, or user of water in, to, or from any interstate stream or the waters thereof: Provided, That the right to the use of water acquired under the provisions of this Act shall be appurtenant to the land irrigated, and beneficial use shall be the basis, the measure, and the limit of the right.*" The words which we have italicized constitute the only instance, so far as we are advised, in which the legislation of Congress relating to the appropriation of water in the arid land region has contained any distinct mention of interstate streams. The explanation of this exceptional mention is to be found in the pendency in this court at that time of the case of *Kansas v. Colorado*, wherein the relative rights of the two States, the United States, certain Kansas riparians and certain Colorado appropriators and users in and to the waters of the Arkansas River, an interstate stream, were thought to be involved. Congress was solicitous that all questions respecting interstate streams thought to be involved in that litigation should be left to judicial determination unaffected by the act,—in other words, that the matter be left just as it was before. The words aptly reflect that purpose.

The decision in *Kansas v. Colorado*, 206 U. S. 46, was a pioneer in its field. On some of the questions presented it was intended to be and is comprehensive, and on others it was intended to be within narrower limits, the court saying, "the views expressed in this opinion are to be confined to a case in which the facts and the local law of the two States are as here disclosed." On full consideration it was broadly determined that a controversy between two States over the diversion and use of waters of a stream passing from one to the other "makes a matter for investigation and determination by this court" in the exercise of its original jurisdiction, and also that the upper State on such a stream does not have such ownership or control of the waters flowing therein as entitles her to divert and use them regardless of any injury or prejudice to the rights of the lower State in the stream. And, on consideration of the particular facts disclosed and the local law of the two States, it was determined that Colorado was not taking more than what under the circumstances would be her share under an equitable apportionment.

As respects the scope and interpretation of the ultimate conclusion in that case it should be observed, first, that the court was there concerned, as it said, with a controversy between two States, "one recognizing generally the common-law rule of riparian rights" and the other the doctrine of appropriation; secondly, that the diversion complained of was not to a watershed from which none of the water could find its way into the complaining State, but quite to the contrary; and, thirdly, that what the complaining State was seeking was not to prevent a proposed diversion for the benefit of lands as yet unreclaimed, but to interfere with a diversion which had been practiced for years and under which many thousands of acres of unoccupied and barren lands had been reclaimed and made productive. In these circumstances, and after observing that the diminution in the flow of

the river had resulted in "perceptible injury" to portions of the valley in Kansas, but in "little, if any, detriment" to the great body of the valley, the court said, "it would seem equality of right and equity between the two States forbids any interference with the present withdrawal of water in Colorado for purposes of irrigation;" and that, if the depletion of the waters by Colorado should be increased, the time would come when Kansas might "rightfully call for relief against the action of Colorado, its corporations and citizens in appropriating the waters of the Arkansas for irrigation purposes." What was there said about "equality of right" refers, as the opinion shows (p. 97), not to an equal division of the water, but to the equal level or plane on which all the States stand, in point of power and right, under our constitutional system.

Like that case the one now before us presents a controversy over the waters of an interstate stream. But here the controversy is between States in both of which the doctrine of appropriation has prevailed from the time of the first settlements, always has been applied in the same way, and has been recognized and sanctioned by the United States, the owner of the public lands. Here the complaining State is not seeking to impose a policy of her choosing on the other State, but to have the common policy which each enforces within her limits applied in determining their relative rights in the interstate stream. Nor is the United States seeking to impose a policy of its choosing on either State. All that it has done has been to recognize and give its sanction to the policy which each has adopted. Whether its public land holdings would enable it to go further we need not consider. And here the complaining State is not seeking to interfere with a diversion which has long been practiced and under which much reclamation has been effected, but to prevent a proposed diversion for the benefit of lands as yet unreclaimed.

With this understanding of the case in hand and of some of the matters in the light of which it should be con-

sidered, we take up the several contentions, before noticed, which are pressed on our attention.

The contention of Colorado that she as a State rightfully may divert and use, as she may choose, the waters flowing within her boundaries in this interstate stream, regardless of any prejudice that this may work to others having rights in the stream below her boundary, can not be maintained. The river throughout its course in both States is but a single stream wherein each State has an interest which should be respected by the other. A like contention was set up by Colorado in her answer in *Kansas v. Colorado* and was adjudged untenable. Further consideration satisfies us that the ruling was right. It has support in other cases, of which *Rickey Land & Cattle Co. v. Miller & Lux*, 218 U. S. 258; *Bean v. Morris*, 221 U. S. 485; *Missouri v. Illinois*, 180 U. S. 208, and 200 U. S. 496, and *Georgia v. Tennessee Copper Co.*, 206 U. S. 230, are examples.

The objection of Wyoming to the proposed diversion on the ground that it is to another watershed, from which she can receive no benefit, is also untenable. The fact that the diversion is to such a watershed has a bearing in another connection, but does not in itself constitute a ground for condemning it. In neither State does the right of appropriation depend on the place of use being within the same watershed. Diversions from one watershed to another are commonly made in both States and the practice is recognized by the decisions of their courts. *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443, 449; *Thomas v. Guiraud*, 6 Colo. 530; *Hammond v. Rose*, 11 Colo. 524; *Oppenlander v. Left Hand Ditch Co.*, 18 Colo. 142, 144; *Moyer v. Preston*, 6 Wyo. 308, 321; *Willey v. Decker*, 11 Wyo. 496, 529-531. And the evidence shows that diversions are made and recognized in both States which in principle are not distinguishable from this, that is, where water is taken in one State from a watershed leading into

the other State and conducted into a different watershed leading away from that State, and from which she never can receive any benefit. The principle of such diversions being recognized in both States, its application to this interstate stream does not in itself afford a ground for complaint, unless the practice in both be rejected in determining what, as between them, is reasonable and admissible as to this stream, which we think should not be done.

We are thus brought to the question of the basis on which the relative rights of these States in the waters of this interstate stream should be determined. Should the doctrine of appropriation, which each recognizes and enforces within her borders, be applied? Or is there another basis which is more consonant with right and equity?

The lands in both States are naturally arid and the need for irrigation is the same in one as in the other. The lands were settled under the same public land laws and their settlement was induced largely by the prevailing right to divert and use water for irrigation, without which the lands were of little value. Many of the lands were acquired under the Desert Land Act which made reclamation by irrigation a condition to the acquisition. The first settlers located along the streams where water could be diverted and applied at small cost. Others with more means followed and reclaimed lands farther away. Then companies with large capital constructed extensive canals and occasional tunnels whereby water was carried to lands remote from the stream and supplied, for hire, to settlers who were not prepared to engage in such large undertakings. Ultimately, the demand for water being in excess of the dependable flow of the streams during the irrigation season, reservoirs were constructed wherein water was impounded when not needed and released when needed, thereby measurably equalizing the natural flow. Such was the course of irrigation development in both

States. It began in territorial days, continued without change after statehood, and was the basis for the large respect always shown for water rights. These constituted the foundation of all rural home building and agricultural development, and, if they were rejected now, the lands would return to their naturally arid condition, the efforts of the settlers and the expenditures of others would go for naught and values mounting into large figures would be lost.

In neither State was the right to appropriate water from this interstate stream denied. On the contrary, it was permitted and recognized in both. The rule was the same on both sides of the line. Some of the appropriations were made as much as fifty years ago and many as much as twenty-five. In the circumstances we have stated, why should not appropriations from this stream be respected, as between the two States, according to their several priorities, as would be done if the stream lay wholly within either State? By what principle of right or equity may either State proceed in disregard of prior appropriations in the other?

Colorado answers that this is not a suit between private appropriators. This is true, but it does not follow that their situation and what has been accomplished by them for their respective States can be ignored. As respects Wyoming the welfare, prosperity and happiness of the people of the larger part of the Laramie valley, as also a large portion of the taxable resources of two counties, are dependent on the appropriations in that State. Thus the interests of the State are indissolubly linked with the rights of the appropriators. To the extent of the appropriation and use of the water in Colorado a like situation exists there.

Colorado further answers that she can accomplish more with the water than Wyoming does or can; that she proposes to use it on lands in the Cache la Poudre valley, and

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that they with less water will produce more than the lands in the portion of the Laramie valley known as the Laramie Plains. It is true that irrigation in the Poudre valley has been carried to a higher state of development than elsewhere in the Rocky Mountain region and that the lands of that valley lie at a lower altitude than do those in the Laramie Plains and generally are better adapted to agriculture. In some parts they also require less water. It may be assumed that the lands intended to be reclaimed and irrigated in the Poudre valley conform to the general standard, although this is left uncertain. But for combined farming and stockraising those of the Laramie Plains offer opportunities and advantages which are well recognized. It is to this use that they chiefly are devoted. It is a recognized and profitable industry, has been carried on there for many years and is of general economic value. Many of the original ranchmen still are engaged in it,—some on the tracts where they first settled. With the aid of irrigation, native hay of a high quality, alfalfa, oats and other forage are grown for winter feeding, the live stock being grazed most of the year on unirrigated areas and in the neighboring hills and mountains. In this way not only are the irrigated tracts made productive, but the utility and value of the grazing areas are greatly enhanced. The same industry is carried on in the same way in sections of Colorado. In both States this is a purpose for which the right to appropriate water may be exercised, and no discrimination is made between it and other farming. Even in this suit Colorado is asserting appropriations of this class for 4,250 acres in the portion of the Laramie valley in that State, and is claiming under them an amount of water in excess of what she asserts will irrigate a like acreage in the Poudre valley.

Some of the appropriations from the stream in Wyoming are used for agriculture alone. One of the large projects, dating from territorial days, and constructed at

great cost, carries water from the river through a tunnel one-half mile long and canals several miles in length to the Wheatland District where it is used in irrigating 30,000 acres, all of which are very successfully and profitably farmed in small tracts. This project uses one very large and one comparatively small reservoir for storing water and equalizing the natural flow.

We conclude that Colorado's objections to the doctrine of appropriation as a basis of decision are not well taken, and that it furnishes the only basis which is consonant with the principles of right and equity applicable to such a controversy as this is. The cardinal rule of the doctrine is that priority of appropriation gives superiority of right. Each of these States applies and enforces this rule in her own territory, and it is the one to which intending appropriators naturally would turn for guidance. The principle on which it proceeds is not less applicable to interstate streams and controversies than to others. Both States pronounce the rule just and reasonable as applied to the natural conditions in that region; and to prevent any departure from it the people of both incorporated it into their constitutions. It originated in the customs and usages of the people before either State came into existence, and the courts of both hold that their constitutional provisions are to be taken as recognizing the prior usage rather than as creating a new rule. These considerations persuade us that its application to such a controversy as is here presented cannot be other than eminently just and equitable to all concerned.

In suits between appropriators from the same stream, but in different States recognizing the doctrine of appropriation, the question whether rights under such appropriations should be judged by the rule of priority has been considered by several courts, state and federal, and has been uniformly answered in the affirmative. *Conant v. Deep Creek Irrigation Co.*, 23 Utah, 627, 631; *Willey v.*

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Decker, 11 Wyo. 496, 534-535; *Taylor v. Hulett*, 15 Idaho, 265, 271; *Howell v. Johnson*, 89 Fed. 556; *Hoge v. Eaton*, 135 Fed. 411; *Morris v. Bean*, 146 Fed. 423; *Bean v. Morris*, 159 Fed. 651. One of the cases came to this court and the judgment below was affirmed. *Bean v. Morris*, 221 U. S. 485. These decisions, although given in suits between individuals, tend strongly to support our conclusion, for they show that by common usage, as also by judicial pronouncement, the rule of priority is regarded in such States as having the same application to a stream flowing from one of them to another that it has to streams wholly within one of them.

The remaining questions are largely matters of fact. The evidence is voluminous, some of it highly technical and some quite conflicting. It has all been considered. The reasonable limits of an opinion do not admit of its extended discussion. We must be content to give our conclusions on the main questions and make such references to and comment on what is evidential as will point to the grounds on which the conclusions on those questions rest. As to minor questions we can only state the ultimate facts as we find them from the evidence.

The question first in order, and the one most difficult of solution, relates to the flow of the Laramie River, the common source of supply. The difficulty arises chiefly out of the fact that the flow varies greatly in the course of the year and also from year to year.

Colorado's evidence, which for convenience we take up first, is directed to showing the average yearly flow of all years in a considerable period, as if that constituted a proper measure of the available supply. We think it is not a proper measure,—and this because of the great variation in the flow. To be available in a practical sense the supply must be fairly continuous and dependable. No doubt the natural flow can be materially conserved and equalized by means of storage reservoirs, but this has

its limitations, both financial and physical. The construction of reservoirs of real capacity is attended with great expense, and unless an adequate return reasonably can be foreseen the expenditure is not justified and will not be made. The years of high water and those of low do not alternate. Often several of the same kind follow in succession. The evaporation of stored water in Colorado and Wyoming is from five to six feet per year. So, while it generally is practicable to store water in one part of the year for use in another, or in one year for use in the next, it often, if not generally, is impracticable to store it for longer periods. All this is recognized elsewhere in Colorado's evidence. One of her principal witnesses said:

"With regard to financial practicability of construction of reservoirs on Poudre River capable of conserving extraordinary floods, will state that they call for an expenditure that could be utilized only occasionally. It would be similar to financial proposition of people in Florida preparing to heat their houses in the same manner as those in the northern part of the United States. For years of unusually high flow in the Poudre River, conservation works, to utilize the excess waters in that stream, would have to count on carrying water over more than one year. The utilization of this water means the presence of population on the land; that population must have a living from year to year and they are not justified in going out on the land and settling to raise a crop only once in three or four years. They must have sufficient to make a living from one year to another, and consequently the investment must be such that there can be sufficient water every year to keep these people on the land, and when water can only be conserved once in every three to five years, there must be provision for carrying over water or the people cannot live. It is a question of population as well as investment. The population has to exist and stay on the ground. From standpoint of investment, con-

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servation of flow such as extreme flow of 1884 would be impractical to the extent that it exceeded the ordinary high year. Of such character would be [also] the floods of 1885, 1900 and 1909, three [four] years in thirty." The same witness further said: "Aside from reasons which I have given why reservoirs designed to catch only these rare high water flows of Poudre River are not feasible, it is a fact that no farmer would be able to anticipate the high flow and therefore could not depend at all upon water for irrigation until it reached him. If he undertook to so divert water it would become a gamble rather than a safe guide for living."

Another of her witnesses said:

"The present storage capacity in the Poudre Valley is such that in some years the reservoirs are not all filled, while in some years they are filled and water runs to waste. . . . It would not be possible to inaugurate a scheme in the Poudre Valley to construct reservoirs to store water from one year of high flow to another where such water is the only source of supply, for the reservoirs would have to be constructed to hold the maximum amount, and if the water has to be carried over for three years the average diversion from the reservoir would be only one-third of its capacity, making the cost per acre prohibitive."

And still another of her witnesses, referring to the unused waters of the Poudre in years of high flow and also to what is contemplated by the defendants in respect of the Laramie, said:

"The really dependable water supply of the District ¹ will come from the Laramie River, the amount secured from the Poudre River fluctuating greatly and being used to augment the supply from the Laramie. There will

¹ The reference is to the Greeley-Poudre Irrigation District, one of the defendants.

be years when the supply from the Poudre River and its tributaries will be practically nothing. Our plans contemplate taking all the water that it is possible for us to take from the Laramie River each year. It is possible to get only a certain amount from that river, and I do not believe that we can absolutely depend on more than half the required amount from the Laramie River. The very great floods on that watershed we cannot consider because we cannot construct works to take care of them."

In accord with these statements, bearing on what is susceptible of use in actual practice, is further evidence coming from Colorado's witnesses and exhibits to the effect that, notwithstanding the great need for water in the Poudre valley and the returns obtained from its use, large amounts of water pass down the stream without use or impounding in the years when the flow exceeds what is termed the average. With the high state of irrigation development in that valley the full capacity of the reservoir system there provided when the proof was taken was 146,655 acre-feet,—an evidence of the limitation inhering in the practical storage of water from such streams.

The Cache la Poudre River heads in the same mountain range as does the Laramie and the conditions which make for a pronounced variation in the natural flow are largely the same with both. The following table compiled from data relating to the Cache la Poudre, furnished by Colorado, will be helpful in illustrating the view of the witnesses, and also ours. We add the third and fourth columns.

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VARIATION IN ANNUAL NET DISCHARGE
OF

CACHE LA POUDE RIVER.

April to October, both inclusive, for 30 years.

Taken from Colorado's Exhibit 124.

Year.	Run-off in acre-feet.	Variance from average of all.	Variance from average of all but four.
1884.....	666,466	+369,144	+403,883
1885.....	465,475	+168,153	+202,892
1886.....	290,392	- 6,930	+ 27,809
1887.....	286,840	- 10,482	+ 24,257
1888.....	155,970	-141,352	-106,613
1889.....	185,060	-112,262	- 77,523
1890.....	221,023	- 76,299	- 41,560
1891.....	257,236	- 40,086	- 5,347
1892.....	193,790	-103,532	- 68,793
1893.....	216,730	- 80,592	- 45,853
1894.....	309,444	+ 12,122	+ 46,861
1895.....	344,500	+ 47,178	+ 81,917
1896.....	162,340	-134,982	-100,243
1897.....	332,070	+ 34,748	+ 69,487
1898.....	172,290	-125,032	- 90,293
1899.....	388,591	+ 91,269	+126,008
1900.....	474,573	+177,251	+211,990
1901.....	339,155	+ 41,833	+ 76,572
1902.....	151,636	-145,686	-110,947
1903.....	345,150	+ 47,828	+ 82,567
1904.....	315,437	+ 18,115	+ 52,854
1905.....	361,652	+ 64,330	+ 99,069
1906.....	279,974	- 17,348	+ 17,391
1907.....	386,224	+ 88,902	+123,641
1908.....	252,843	- 44,479	- 9,740
1909.....	486,002	+188,680	+223,419
1910.....	157,514	-139,808	-105,069
1911.....	205,611	- 91,711	- 56,972
1912.....	297,722	+ 400	+ 35,139
1913.....	217,959	- 79,363	- 44,624

Average 297,322, including all years.

Average 262,583, omitting 1884, 1885, 1900, and 1909.

This table shows that during thirty years—1884 to 1913—the yearly flow of the Cache la Poudre ranged from 151,636 to 666,466 acre-feet, that in sixteen of the thirty it fell below the average, and that eight of the sixteen

were in immediate succession. Obviously it is not financially practicable, even by means of reservoirs, to equalize the flow of a stream subject to such variation so that it will have a fairly constant and dependable flow at the average of all years. For further illustration we have taken the average of the twenty-six years remaining after excluding the four described by the witness as extraordinary (these being left to take the average of the others) and on that basis have made a computation of the excess and deficiency, which is shown in the fourth column of the table. Even on this basis there were thirteen years in which the flow was below the average and, of these, six came in immediate succession. In four the deficiency exceeded 100,000 acre-feet and of the four only one followed a year in which there was an excess sufficient, if carried over in storage, to cover the deficiency. This suffices to show that the average of all years is far from being a proper or safe measure of the available supply. An intending irrigator acquiring a water right based on such a measure would be almost certainly confronted with drought when his need for water was greatest. Crops cannot be grown on expectations of average flows which do not come, nor on recollections of unusual flows which have passed down the stream in prior years. Only when the water is actually applied does the soil respond.

We have dealt with the matter of the average flow at this length because throughout Colorado's evidence and in her briefs it is treated as if it were a proper measure of the supply available for practical use. It is there applied to the Laramie not only directly, but indirectly by increasing the gaged flow for a particular year or period by percentages derived by comparing the flow of the Poudre for that year or period with the average for the thirty years, including those in which the flow was so extraordinary that concededly much of it neither was nor could be used. Thus water which is not part of the available supply is counted in measuring that supply.

When the evidence was taken, in 1913 and 1914, the Laramie had not been gaged so thoroughly nor for so long a period as had the Cache la Poudre. Such gaging as had occurred had been done at different places in different periods, partly by the United States Geological Survey, partly by Colorado and partly by Wyoming. Some of the gaging stations were in Colorado, but most were in Wyoming. The latter included Woods, nine miles north of the state boundary, and the Pioneer Dam, four miles north of Woods. The evidence centered largely around the flow and gaging at these places. Colorado's chief witness prepared and presented a table based on data, drawn from various sources, and bearing on the flow at Woods from April to October, both inclusive, for several years and made this table the principal basis of his testimony concerning the flow of the stream in that vicinity. We here reproduce the material part of the table, the third and fourth columns being ours.

DISCHARGE OF LARAMIE RIVER, WOODS, WYO.

April to October, both inclusive, for 9 years.

Taken from Colorado's Exhibit 127.

Year.	Acre-feet.	Variance from average.	Variance from average of all but 1899.
1895.....	220, 239	+ 21, 694	+ 45, 730
1896.....	108, 022	- 90, 523	- 66, 487
1897.....	251, 074	+ 52, 529	+ 76, 565
1898.....	117, 765	- 80, 780	- 56, 744
1899.....	390, 730	+192, 185	+216, 221
1900.....	248, 105	+ 49, 560	+ 73, 596
1911.....	138, 240	- 60, 305	- 36, 269
1912.....	213, 407	+ 14, 862	+ 38, 898
1913.....	99, 221	- 99, 324	- 75, 288

Average, 198,533, including all years.

Average, 174,509, excluding 1899.

The data covered two widely separated periods, one of six years and the other of three. The witness took the average of the nine years, which he gave as 198,545 acre-feet, and made this the basis of further calculations. He estimated that the usual flow for the other months was one-tenth of that for the full year, or, putting it in another way, one-ninth of that from April to October, both inclusive; and on this basis he added to his average 21,945 acre-feet, making 220,490. Consulting the Cache la Poudre table, set forth above, he concluded that the nine years, in combination, fell below the full average for the thirty years covered by that table, and to bring the nine years up to a thirty-year average he added 9,510 acre-feet, making 230,000. Some water from Wyoming enters the river between the state boundary and Woods, and for this he deducted 13,000 acre-feet, leaving 217,000. Then, making a reservation as to Sand Creek, to be considered presently, he concluded that 217,000 acre-feet was the average yearly flow in that section of the river. He called it the "normal" flow, an evident misnomer. This did not include water diverted in Colorado, under recognized Colorado appropriations, which does not reach Wyoming.

Even if the computation was to be made along the lines of something approaching a general average, we think the witness's computation and conclusion are subject to objection in particulars which we proceed to state.

The table shows that the flow for 1899 was extraordinary, so much so that it should have been excluded in computing the average and left to take the general level of the others. Its flow was 216,221 acre-feet in excess of their average. The excess added nothing to the available supply,—that which in practice could be used. The flow for the next year was such that it required no augmentation from 1899. So, the inclusion of 1899 in the computation was, in effect, taking what was not available as a

measure of what was. The error raised the average of the other years 24,036 acre-feet, and was carried into the ultimate conclusion.

We do not doubt that it was admissible to compare the data relating to the Laramie with that relating to the Cache la Poudre and to give effect to such conclusions as reasonably were to be drawn from the comparison; but we think there was no justification for the addition which was made to bring the nine years up to the standard of an average year among the thirty covered by the Cache la Poudre table. The addition tended to distort rather than to reflect the available supply. Looking at the Cache la Poudre table, it is evident that the nine years, in combination, would not have appeared short in flow had the four extraordinary years in the thirty been excluded, as they should have been. Besides, a comparison of the two tables shows that the variation in yearly flow in the two streams is not the same and that the difference is such as to preclude a nice calculation such as was here made on the basis of an assumed uniformity. To illustrate: According to one table the flow of the Poudre from April to October, both inclusive, in 1900 was 85,982 acre-feet in excess of that for the same months in 1899, while according to the other the flow of the Laramie for those months in 1899 was 142,625 acre-feet in excess of that for the corresponding period in 1900; and according to one table the flow of the Poudre for those months in 1913 was 73.2 per cent. of that for the same part of 1912, while according to the other the flow of the Laramie for those months in 1913 was 46.5 per cent. of that for the same part of 1912.

Assuming that 13,000 acre-feet enter the river from Wyoming between the state boundary and Woods, and are part of the river at the latter point, we think this water should not have been deducted. It is part of the supply available to satisfy appropriations from the stream in Wyoming.

The witness treated the flow from April to October, both inclusive, in 1912 as being 213,407 acre-feet, and the flow in the same months in 1913 as being 99,221 acre-feet. In this we think he erred. The evidence establishes that the flow in the first period was not more than 191,820 acre-feet and in the second was not more than 94,369. Even with the year 1899 excluded, this error increased the average 3,305 acre-feet.

If we exclude the extraordinary flow of 1899, make the needed correction in the flow of 1912 and 1913, and assume the accuracy of the other data, the average becomes 171,204 acre-feet, instead of 198,545, as given by the witness. This requires that the 21,945 acre-feet which were added to cover the flow for the five other months be reduced to 19,023.

When these corrections are made in the witness's data and computation, the result is changed from 217,000 acre-feet to 190,227.

But we are of opinion that the computation and conclusion of the witness, even when revised in the way we have indicated, are based too much on the average flow and not enough on the unalterable need for a supply which is fairly constant and dependable, or is susceptible of being made so by storage and conservation within practicable limits. By this it is not meant that known conditions must be such as give assurance that there will be no deficiency even during long periods, but rather that a supply which is likely to be intermittent, or to be materially deficient at relatively short intervals, does not meet the test of practical availability. As we understand it, substantial stability in the supply is essential to successful reclamation and irrigation. The evidence shows that this is so, and it is fully recognized in the literature on the subject.

The same witness prepared and submitted another table embodying all the data he was able to secure from records

of past gaging and measurements at Woods. This included three years not shown in the nine-year table. They and their recorded flow from April to October, both inclusive, were: 1889, 132,349 acre-feet; 1890, 168,406 acre-feet, and 1891, 207,146 acre-feet. The witness pronounced the data for these years less accurate than that for the others, and, while his reason for doing so does not clearly appear, we shall assume he was right. Had the three years been included in the nine-year table that would have reduced the average from 198,545 to 189,371 acre-feet, counting all years, and from 174,509 to 171,066 acre-feet, counting all but 1899. It, however, would not have shown another year with a flow as low as that of 1913, nor as low as that of 1896.

Colorado presented other evidence in the way of general estimates, results of very fragmentary gaging, and opinions based on rough measurements of snow-drifts in the mountainous area about the head of the stream; but we put all of this aside as being of doubtful probative value at best and far less persuasive than the evidence we have been discussing.

Wyoming's evidence was based on the same recorded data that were used by Colorado, and also on actual gaging and measurements by an experienced hydrographer covering the period beginning April 1, 1912, and ending April 30, 1914. Shortly stated, her evidence was to the effect that the actual measured flow at the Pioneer Dam, four miles below Woods, was 198,867 acre-feet from April to December, both inclusive, in 1912, was 109,593 acre-feet for all of 1913 and was 19,181 acre-feet for the first four months of 1914; that the flow for 1912 was somewhat above the average, counting all years; that the flow for 1913 was somewhat more than fifty per cent. of the average, and that the average at Woods and in that vicinity, counting all years, was approximately 200,000 acre-feet. Wyoming's chief witness, the hydrographer, submitted

the following table giving the results of his gaging and measurements at the Pioneer Dam.

DISCHARGE OF LARAMIE RIVER AT PIONEER DAM, NEAR
WOODS, WYO., (Including diversion just above dam by
Pioneer Canal)

IN ACRE-FEET.

	1912	1913	1914
January.....		2,650	3,283
February.....		2,355	3,088
March.....		3,296	4,003
April.....	5,534	12,674	8,807
May.....	40,643	38,307
June.....	91,874	26,598
July.....	34,863	6,825
August.....	7,809	3,130
September.....	4,641	3,023
October.....	6,456	3,812
November.....	4,403	3,677
December.....	2,644	3,246
Total.....	198,867	109,593	19,181

The evidence does not permit us to doubt the accuracy of these data. They were obtained by work which is shown to have been painstakingly and conscientiously done by one fully competent to do it. The place at which it was done was well adapted to obtaining accurate results and the observations were continuous, not merely occasional or intermittent.

As the gaging did not cover the first three months of 1912, it is necessary to arrive at the flow for those months. The proof shows that the flow for the same months in 1914 fairly may be taken for the purpose. That was 10,374 acre-feet, the addition making 209,241 acre-feet for 1912. The flow for 1913 was 109,593 acre-feet. Both should be increased 4,000 acre-feet to cover water diverted between Woods and the Pioneer Dam and not returning

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to the stream above the gaging station. This gives a total of 213,241 acre-feet for 1912 and 113,593 acre-feet for 1913. Tested by the flow of these years, the available supply would be 163,417 acre-feet; that is to say, on that basis the excess in 1912 would match the deficiency in 1913. But a survey of more than two years is essential in arriving at a fair conclusion respecting the available supply. A year of low flow is not always preceded by one of high or moderate flow as was the case with 1912 and 1913.

In diverting and applying water in irrigation there is a material loss through evaporation, seepage and otherwise which is unavoidable. The amount varies according to the conditions,—chiefly according to the distance the water is carried through canals and ditches and the length of time it is held in storage. Where the places of use are in the same watershed and relatively near the stream, as is true of the lands on the Laramie Plains served by the greater part of the Wyoming appropriations, a substantial amount of water percolates back into the stream from irrigated areas and becomes available for further use lower down the stream. This is called return water. The amount varies considerably and there are no definite data on the subject. As respects irrigation on the Laramie Plains above the Wheatland diversion, the evidence satisfies us that the return water will certainly more than counter-balance the loss through evaporation and otherwise when the period of storage is not more than from one year to the next.

What has now been said covers the substance of the evidence, as we regard it, bearing on the available supply at Woods and in that vicinity, that is to say, the supply remaining after the recognized Colorado appropriations are satisfied.

We already have indicated that, as to such a stream as this, the average flow of all years, high and low, cannot

be taken as a proper or reasonable measure of what is available for practical use. What then is the amount which is available here? According to the general consensus of opinion among practical irrigators and experienced irrigation engineers, the lowest natural flow of the years is not the test. In practice they proceed on the view that within limits, financially and physically feasible, a fairly constant and dependable flow materially in excess of the lowest may generally be obtained by means of reservoirs adapted to conserving and equalizing the natural flow; and we regard this view as reasonable.

But Wyoming takes the position that she should not be required to provide storage facilities in order that Colorado may obtain a larger amount of water from the common supply than otherwise would be possible. In a sense this is true; but not to the extent of requiring that the lowest natural flow be taken as the test of the available supply. The question here is not what one State should do for the other, but how each should exercise her relative rights in the waters of this interstate stream. Both are interested in the stream and both have great need for the water. Both subscribe to the doctrine of appropriation, and by that doctrine rights to water are measured by what is reasonably required and applied. Both States recognize that conservation within practicable limits is essential in order that needless waste may be prevented and the largest feasible use may be secured. This comports with the all-pervading spirit of the doctrine of appropriation and takes appropriate heed of the natural necessities out of which it arose. We think that doctrine lays on each of these States a duty to exercise her right reasonably and in a manner calculated to conserve the common supply. Notwithstanding her present contention, Wyoming has in fact proceeded on this line, for, as the proof shows, her appropriators, with her sanction, have provided and have in service reservoir facilities which are adapted for the

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purpose and reasonably sufficient to meet its requirements.

There is one respect, requiring mention, in which Colorado's situation differs materially from that of Wyoming. The water to satisfy the Colorado appropriations is, and in the nature of things must be, diverted in Colorado at the head of the stream; and because of this those appropriations will not be affected by any variation in the yearly flow, but will receive their full measure of water in all years. On the other hand, the Wyoming appropriations will receive the water only after it passes down into that State and must bear whatever of risk is incident to the variation in the natural flow. Of course, this affords no reason for underestimating the available supply, but it does show that to overestimate it will work particular injury to Wyoming.

The lowest established flow was that of 1913. There is no claim or proof that in any other year the flow fell so low. Had there been others some proof of it doubtless would have been presented. This is also true of the very low flow of 1896. Therefore we think it reasonably may be assumed that the flow of those years was so exceptional that it is not likely to recur save at long intervals.

We conclude in view of all the evidence, and of the several considerations we have stated, that the natural and varying flow of this stream at Woods, which is after the recognized Colorado appropriations are satisfied, is susceptible by means of practicable storage and conservation of being converted into a fairly constant and dependable flow of 170,000 acre-feet per year, but not more. This we hold to be the available supply at that point after the recognized Colorado diversions are made. The amount may seem large, but, considering what may be accomplished with practicable storage facilities, such as are already provided, and the use which may be made of

the return water, we are persuaded that the amount, while closely pressing the outside limit, is not too large.

The problem to be worked out in obtaining a fairly dependable supply in that amount is measurably illustrated by the following table covering all the years for which the evidence supplies the requisite data, the flow during the missing months being fairly estimated.

Year.	Acre-feet.	Variance from average of all.	Variance from average of all but 1899.	Variance from 170,000.
1889.....	151,349	-56,893	-38,576	-18,651
1890.....	187,406	-20,836	-2,519	+17,406
1891.....	226,146	+17,904	+36,221	+56,146
1895.....	239,239	+30,997	+49,314	+69,239
1896.....	127,022	-81,220	-62,903	-42,978
1897.....	270,074	+61,831	+80,149	+100,074
1898.....	136,765	-71,477	-53,160	-33,235
1899.....	409,730	+201,488	+219,805	+239,730
1900.....	267,105	+58,863	+77,180	+97,105
1911.....	157,240	-51,002	-32,685	-12,760
1912.....	213,241	+4,999	+23,316	+43,241
1913.....	113,593	-94,649	-76,332	-56,047

Average 208,242, including all years.

Average 189,925, including all years but 1899.

It of course is true that the variation in the flow will not always be just what it was in the years covered by the table, and yet the data obtained by the gaging and measurements in those years show better than anything else what reasonably may be expected in the future. We recognize that the problem which the table is intended to illustrate is not a simple one and that to work it out will involve the exercise of both skill and care. But in this it is not unlike other problems of similar moment. Our belief gathered from all the evidence is that, with the attention which rightly should be bestowed on a problem of such moment, it can be successfully solved within the limits of what is financially and physically practicable.

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As to Sand Creek, Colorado's witness regarded it as a tributary of the river and estimated its yearly flow at 17,000 acre-feet. The creek rises in Colorado, extends into the Laramie Plains in Wyoming and discharges into Hutton Lake, a few miles from the river. In exceptional years—about one in five—the waters of the creek overflow the lake for a short period and find their way over the prairie into the river. Otherwise the river receives no water from the creek. The proof of this is direct and undisputed. The creek is nominally a tributary of the river, but only that. Besides, its flow does not appear to have been measured. The witness merely estimated it at what he thought would be the natural run-off of the adjacent territory. Other evidence suggests that the estimate is too high, but this we need not consider. A substantial part of the flow is diverted, through what is known as the Divide Ditch, for use in irrigating lands in Colorado, and the evidence suggests, if it does not establish, that existing appropriations in the two States take the entire flow. For these reasons the waters of this creek cannot be regarded as a factor in this controversy.

After passing Woods, and while traversing the territory wherein are the Wyoming appropriations with which we are concerned, the Laramie receives one large and some very small additions to its waters.

The large addition comes from the Little Laramie, a stream whose source and entire length are in Wyoming. Its natural flow is a little more than one-half of that of the main stream at Woods and is subject to much the same variations. Part of its flow is used under appropriations along its course and the remainder passes into the main stream. Including what is appropriated along its course, and excluding minor contributions by small creeks after it gets well away from its headwaters, we think the amount available for practical use is 93,000 acre-feet per year.

None of the small tributaries, whether of the Laramie or the Little Laramie, adds much to the available supply.

Their natural flow is small. As to some it is all used under old appropriations; as to some it is partly used under such appropriations; and as to some it is only seasonal, the channels being dry much of the year. Some creeks spoken of in Colorado's evidence as tributaries are otherwise shown not to be such, but to deliver their waters into lakes or ponds not connected with either of the principal streams. Colorado's evidence also takes into account some tributaries which discharge into the Laramie below the points of diversion of all the Wyoming appropriations with which we are concerned. One, of which much is said in the evidence, is the Sybille. It reaches the Laramie below the diversion for the Wheatland District (the lowest diversion we are to consider), but in its course passes through that district. A small part of its flow is used in that district and it is not practicable to use more. What is used should, for present purposes, be treated as if it reached the Laramie above the Wheatland diversion. Wyoming contends that none of these small tributaries, other than the Sybille, contributes any dependable amount to the available supply. We think there is in the aggregate a fairly dependable contribution of 25,000 acre-feet, but not more.

It results that, in our opinion, the entire supply available for the proposed Colorado appropriation and the Wyoming appropriations down to and including the diversion for the Wheatland District is 288,000 acre-feet.

In contending for a larger finding, Colorado points to the issue by Wyoming's State Engineer of permits, so-called, for appropriations in excess of that amount and insists that these permits constitute solemn adjudications by that officer that the supply is adequate to cover them. But in this the nature of the permits is misapprehended. In fact and in law they are not adjudications, but mere licenses to appropriate, if the requisite amount of water be there. As to many nothing ever is done under them by

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the intending appropriators. In such cases there is no appropriation; and even in others the amount of the appropriation turns on what is actually done under the permit. In late years the permits relating to these streams have contained a provision, saying: "The records of the State Engineer's office show the waters of [the particular stream] to be largely appropriated. The appropriator under the permit is hereby notified of this fact, and the issuance of this permit grants only the right to divert and use the surplus or waste water of the stream and confers no rights which will interfere with or impair the use of water by prior appropriators." It therefore is plain that these permits have no such probative force as Colorado seeks to have attributed to them.

Colorado also comments on the amount of water stored in Wyoming reservoirs in 1912 and seeks to draw from this an inference that the available supply was greater than we have indicated. But the inference is not justified, and for these reasons: First, a part of what was stored was dead water, that is, was below the level from which water could be drawn off and conducted to the places of use. This is a matter commonly experienced in the selection and use of reservoir sites. Secondly, the flow of 1912 was above what could be depended on and prudence required that a substantial part be carried over to meet a possible shortage in the succeeding year. And, thirdly, the evidence shows that in 1912 the storing process was improvidently carried to a point which infringed the rights of small appropriators who were without storage facilities.

The available supply—the 288,000 acre-feet—is not sufficient to satisfy the Wyoming appropriations dependent thereon and also the proposed Colorado appropriation, so it becomes necessary to consider their relative priorities.

There are some existing Colorado appropriations having priorities entitling them to precedence over many of the

Wyoming appropriations. These recognized Colorado appropriations are, 18,000 acre-feet for what is known as the Skyline Ditch and 4,250 acre-feet for the irrigation of that number of acres of native-hay meadows in the Laramie valley in Colorado, the 4,250 acre-feet being what Colorado's chief witness testifies is reasonably required for the purpose, although a larger amount is claimed in the State's answer. These recognized Colorado appropriations, aggregating 22,250 acre-feet, are not to be deducted from the 288,000 acre-feet, that being the available supply after they are satisfied. Nor is Colorado's appropriation from Sand Creek to be deducted, that creek, as we have shown, not being a tributary of the Laramie.

The proposed Colorado appropriation which is in controversy here is spoken of in the evidence as the Laramie-Poudre tunnel diversion and is part of an irrigation project known as the Laramie-Poudre project. Colorado insists that this proposed appropriation takes priority, by relation, as of August 25, 1902, and Wyoming that the priority can relate only to the latter part of 1909. The true date is a matter of importance, because some large irrigation works were started in Wyoming between the dates mentioned, were diligently carried to completion, and are entitled to priorities as of the dates when they were started.

The Laramie-Poudre project is composed of several units, originally distinct, which underwent many changes before they were brought together in a single project. In its final form the project is intended to divert water by means of a tunnel from the Laramie River into the Poudre watershed, there to unite that water with water taken from the Cache la Poudre River and then to convey the water many miles to the lower part of the Poudre valley, where it is to be used in reclaiming and irrigating a body of land containing 125,000 acres. It is a large and ambitious project whose several parts, as finally brought

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together, are adjusted to the attainment of that purpose. The parts were separately conceived, each having a purpose of its own. The project now is intended to draw on two independent sources of supply, each in a separate watershed.¹ The appropriations are necessarily distinct. Neither adds anything to, nor substracts anything from, the status of the other. We are concerned with only one of them.

The proposed tunnel diversion from the Laramie was conceived as a possibility by Wallace A. Link in 1897 and was explained by him to Abraham I. Akin in the spring of 1902. Later in the year they visited the headwaters of the two streams, looked over the ground, and agreed that Link's idea was a good one, that the undertaking was large and that they were without the means to carry it through. They concluded to promote the project together; and, thinking their chances of success would be improved by it, they also concluded to construct a ditch, known as the Upper Rawah, from the Laramie valley to a connection with an existing ditch, called the Skyline, and to take water through these ditches into the Cache la Poudre valley and there sell it. By this they hoped to demonstrate that water was obtainable from that source and to obtain money to be used in promoting their project. The Skyline was a fair-sized ditch leading over a low part of the divide to a branch of the Poudre, and they

¹ An engineer who had been connected with the work, and was a witness for the defendants, said: "This system has two distinct and independent sources of supply; that from the Laramie River and that from the Poudre River basin and the tributaries of the South Platte, and it was so designed that the Poudre Valley Canal could divert water from the Poudre River and also from the northern tributaries of the Poudre intercepted by the canal and from the tributaries of the South Platte as far east as Crow Creek and intercepted by the canal wherever there was surplus water. We estimated that the amount of water available outside of the Laramie River source would be between 80,000 and 100,000 acre-feet per annum as an average."

arranged with its owner for the carriage, on a percentage basis, of water from their ditch when constructed. They also conceived that the ditch could be used advantageously in collecting and carrying water to be sent through the tunnel, if and when the tunnel diversion was effected. In 1902, beginning August 25, they surveyed the line of the Rawah and in October of that year filed a statement of claim under it in the State Engineer's office. In the statement they said nothing about a tunnel diversion and made claim only to the amount of water expected to be carried through the Rawah and to the use of certain lakes or natural reservoirs for storage purposes. No work was done on the ditch that year. In 1903 they cleared some of the land over which it was to run, but did no excavating. In 1904 they constructed 6,000 feet of the ditch and did more clearing. No work was done on it in 1905 or 1906. Further work was done in 1907 and some wash-outs were repaired in 1908. That was the last work on the Rawah. Much more than one-half of the ditch was left unconstructed. No water was delivered through it to the Skyline, nor was any sold or used. Nothing appears to have been done with the lakes or natural reservoirs.

In 1903 Link and Akin gave to each of three others a one-fifth share in their project, in return for which the new partners were to carry on solicitations to get capitalists interested and to raise money. The results of the solicitations were disappointing, but some investors were brought in and became concerned about the preliminary plans. Differences of opinion arose and had to be dealt with. The plans were examined and reexamined, alternative modes and places of diversion were considered and investigated, particular features were eliminated and others added, and in 1909, but not before, the project was definitely brought into its present form. A short reference to some of the details will serve to make this plain.

In the Upper Rawah filing of October, 1902, nothing was said about the proposed tunnel diversion, but a claim was made to the use of certain lakes or natural reservoirs described as having an aggregate capacity of 325,000,000 cubic feet. The tunnel diversion was merely a mental conception until 1904. In March of that year a survey was made of a tunnel site, a ditch from the west fork of the Laramie to the east fork, and a channel reservoir on the east fork above the tunnel site; and in May following a statement of claim under them was filed, in which the estimated cost of the tunnel and ditch was given as \$189,200 and that of the reservoir as \$20,000. Later in 1904 a survey was made of a tunnel site, three collecting ditches and two pipe lines, and in October of that year a statement of claim under them was filed, in which the estimated cost of the tunnel, ditches and pipe lines was given as \$375,000. The location and dimensions of the tunnel in the second survey differed from those in the first. The difference was not pronounced, and yet was a real change. In September, 1906, another statement of claim was filed covering the Upper Rawah Ditch, the lakes connected therewith and the tunnel. This statement declared that the lakes were to be so enlarged that they would have an aggregate capacity of 1,250,000,000 cubic feet, instead of 325,000,000 as stated in the filing of 1902; and it again changed the location and dimensions of the tunnel,—this time more than before.

In 1905 and 1906 surveys were made to find a route for an open canal from the Laramie around the mountains, through a portion of Wyoming and back to Colorado, which would avoid the construction of a tunnel and the maintenance of ditches in the higher mountain levels; and in 1908 a statement of claim covering such a canal was filed, as was also a claim covering a large channel reservoir nine miles down the stream from the tunnel site. The estimated cost of the canal was given as \$1,000,000

and that of the reservoir as \$200,000. The plan evidenced by these filings was that of impounding the water in the reservoir and liberating it in an equalized flow into the canal, which was to carry it into the Poudre watershed without the aid of a tunnel. Late in 1908 and in the fore part of 1909 another survey along the same general line and with the same purpose was made at a cost of \$15,000. Early in 1909 a statement of claim was filed covering a proposed reservoir near the tunnel site, the cost being estimated at \$200,000.

In 1907 the Laramie-Poudre Reservoirs and Irrigation Company succeeded to whatever rights the promoters had acquired up to that time, and all subsequent surveys, investigations and filings were made by it. In April, 1909, the Greeley-Poudre Irrigation District, within which the water is intended to be used, was organized. At that time sufficient capital had not been obtained to carry the project through in any form. In September following the irrigation company and the irrigation district entered into a tentative contract, under which the company was to consummate the project in its present form, and, after doing the construction work, was to transfer the property to the district. Payment therefor was to be made in interest-bearing bonds of the district. By a vote taken the next month, the district ratified the contract and authorized the issue of the bonds. About the last of that month the work of boring the tunnel and making the diversion was begun.

It is manifest from this historical outline that the question of whether, and also how, this proposed appropriation should be made remained an open one until the contract with the irrigation district was made and ratified in 1909. Up to that time the whole subject was at large. There was no fixed or definite plan. It was all in an inceptive and formative stage,—investigations being almost constantly in progress to determine its feasibility and

whether changes and alternatives should be adopted rather than the primary conception. It had not reached a point where there was a fixed and definite purpose to take it up and carry it through. An appropriation does not take priority by relation as of a time anterior to the existence of such a purpose.

It no doubt is true that the original promoters intended all along to make a large appropriation from the Laramie by some means, provided the requisite capital could be obtained, but this is an altogether inadequate basis for applying the doctrine of relation.

No separate appropriation was effected by what was done on the Upper Rawah Ditch. The purpose to use it in connection with the Skyline was not carried out, but abandoned. This, as Link testified, was its "principal" purpose. The purpose to make it an accessory of the large project was secondary and contingent. Therefore the work on it cannot be taken as affecting or tolling back the priority of that project.

Actual work in making the tunnel diversion was begun as before shown, about the last of October, 1909. Thereafter it was prosecuted with much diligence and in 1911, when this suit was brought, it had been carried so nearly to a state of completion that the assumption reasonably may be indulged that, but for the suit, the appropriation soon would have been perfected. We conclude that the appropriation should be accorded a priority by relation as of the latter part of October, 1909, when the work was begun.

Applying a like rule to the Wyoming appropriations, several of them must be treated as relating to later dates, and therefore as being junior to that appropriation. Some of the projects in that State are founded on a plurality of appropriations, a part of which are senior and a part junior to that one.

The evidence shows that the Wyoming appropriations having priorities senior to the one in Colorado, and which